

## CHAPTER 11 The Demand for Factors of Production

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## Chapter 11 The Demand for Factors of Production

1. Factor pricing is important because:

- A) factor prices are a major determinant of money incomes.
- B) factor prices allocate scarce factors among alternative uses.
- C) factor prices, along with factor productivity, are important to firms in minimizing their costs.
- D) of all of the above reasons.

Ans: D Level: Easy Main Topic: 11.1 Factor pricing and demand Page: 268  
Subtopic: Marginal productivity theory of factor demand Type: Application

2. Which of the following statements best illustrates the concept of derived demand?

- A) As income goes up the demand for farm products will increase by a smaller relative amount.
- B) A decline in the price of margarine will reduce the demand for butter.
- C) A decline in the demand for shoes will cause the demand for leather to decline.
- D) When the price of gasoline goes up, the demand for motor oil will decline.

Ans: C Level: Moderate Main Topic: 11.1 Factor pricing and demand  
Page: 268 Subtopic: Marginal productivity theory of factor demand  
Type: Application

3. In a perfectly competitive factor market, a firm that hires labour is a:

- A) "price maker."
- B) "wage taker."
- C) "money maker."
- D) "product taker."

Ans: A Level: Easy Main Topic: 11.1 Factor pricing and demand Page: 268  
Subtopic: Marginal productivity theory of factor demand Type: Definition

4. When economists say that the demand for labour is a derived demand, they mean that the demand for labour is:

- A) dependent on government expenditures for public goods and services.
- B) related to the demand for the product or service labour is producing.
- C) based on the desire of businesses to exploit labour by paying below equilibrium wage rates.
- D) based on the assumption that workers are trying to maximize their money incomes.

Ans: B Level: Easy Main Topic: 11.1 Factor pricing and demand Page: 268  
Subtopic: Marginal productivity theory of factor demand Type: Definition

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5. The demand for airline pilots results from the demand for air travel. This fact is an example of:
- A) factor substitutability.
  - B) rising marginal factor cost.
  - C) elasticity of factor demand.
  - D) derived demand for labour.

Ans: D Level: Easy Main Topic: 11.1 Factor pricing and demand Page: 268  
Subtopic: Marginal productivity theory of factor demand Type: Application

6. The demand for capital by a firm is based on the demand for the product that the capital produces. This relationship is referred to as:
- A) product demand.
  - B) derived demand.
  - C) factor utilization.
  - D) cost minimization.

Ans: B Level: Easy Main Topic: 11.1 Factor pricing and demand Page: 268  
Subtopic: Marginal productivity theory of factor demand Type: Definition

7. An increase in the demand for computers leads to an increase in demand for computer programmers. This situation arises because:
- A) programmers minimize the costs of production.
  - B) the supply of programmers has decreased.
  - C) the demand for programmers is a derived demand.
  - D) of producer sovereignty in factor markets.

Ans: C Level: Easy Main Topic: 11.1 Factor pricing and demand Page: 268  
Subtopic: Marginal productivity theory of factor demand Type: Application

8. We say that the demand for labour is a "derived demand" because:
- A) labour is a necessary input in the production of every good or service.
  - B) we demand the product which labour helps produce rather than labour service per se.
  - C) the forces of supply and demand do not apply directly to labour markets.
  - D) labour is hired using the  $MRP = MRC$  rule.

Ans: B Level: Easy Main Topic: 11.1 Factor pricing and demand Page: 268  
Subtopic: Marginal productivity theory of factor demand Type: Definition

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9. The demand for a factor depends primarily upon:

- A) the supply of that factor.
- B) the demand for the product or service which it helps produce.
- C) the price of that input.
- D) the elasticity of supply of substitute inputs.

Ans: B Level: Easy Main Topic: 11.1 Factor pricing and demand Page: 268  
Subtopic: Marginal productivity theory of factor demand Type: Application

10. The demand for labour is derived from:

- A) the demands for other variable inputs.
- B) consumer demand for the product or service it is helping to produce.
- C) the cost-minimization rule.
- D) the supply of related inputs.

Ans: B Level: Easy Main Topic: 11.1 Factor pricing and demand Page: 268  
Subtopic: Marginal productivity theory of factor demand Type: Application

11. An example of derived demand is the demand for:

- A) new automobiles.
- B) used automobiles.
- C) labour used to produce autos.
- D) foreign instead of domestic autos.

Ans: C Level: Easy Main Topic: 11.1 Factor pricing and demand Page: 268  
Subtopic: Marginal productivity theory of factor demand Type: Application

12. Derived demand is the demand:

- A) that arises because of monopoly control of factors in a market.
- B) for a product based on the tastes and preferences of consumers.
- C) derived from consumer satisfaction with a product.
- D) for a factor to produce a product.

Ans: D Level: Easy Main Topic: 11.1 Factor pricing and demand Page: 268  
Subtopic: Marginal productivity theory of factor demand Type: Definition

13. An example of derived demand is the demand for:

- A) housing by consumers.
- B) machines by businesses.
- C) paper products by households.
- D) agricultural products by foreign consumers.

Ans: B Level: Easy Main Topic: 11.1 Factor pricing and demand Page: 268  
Subtopic: Marginal productivity theory of factor demand Type: Application

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14. In Canada professional football players earn much higher incomes than professional soccer players. This occurs because:
- A) most football players are good soccer players while the reverse is not true.
  - B) consumers have a greater demand for football games than for soccer games.
  - C) football and soccer games are highly substitutable products for most consumers.
  - D) the marginal productivity of soccer players exceeds that of football players.

Ans: B Level: Easy Main Topic: 11.1 Factor pricing and demand Page: 268  
Subtopic: Marginal productivity theory of factor demand Type: Application

15. Why is the demand for labour referred to as a "derived" demand?
- A) It stems from the drive to minimize production costs to achieve economic efficiency.
  - B) It is based on the demand for the product labour produces.
  - C) It results from decreases in the supply of labour.
  - D) It arises from the shortages in labour markets.

Ans: B Level: Moderate Main Topic: 11.1 Factor pricing and demand  
Page: 268 Subtopic: Marginal productivity theory of factor demand  
Type: Application

16. The strength of the demand for a factor depends on the:
- A) supply of the factor.
  - B) productivity of the factor.
  - C) law of increasing product cost.
  - D) law of diminishing marginal utility.

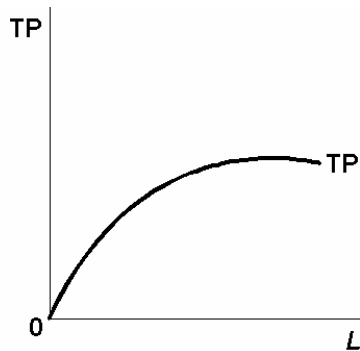
Ans: B Level: Easy Main Topic: 11.1 Factor pricing and demand Page: 269  
Subtopic: Marginal productivity theory of factor demand Type: Application

17. Marginal product is:
- A) the output of the least skilled worker.
  - B) the amount an additional worker adds to the firm's total output.
  - C) a worker's output multiplied by the price at which each unit can be sold.
  - D) the amount any given worker contributes to the firm's total revenue.
  - E) total product divided by the number of workers.

Ans: B Level: Easy Main Topic: 11.1 Factor pricing and demand Page: 269  
Subtopic: Marginal productivity theory of factor demand Type: Definition

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18. Given the graph below, where TP = total product L = labour input and, the marginal revenue product of labour =(MRP) for a perfectly competitive firm:



- A) is constant.
- B) increases at an increasing rate.
- C) decreases as the labour input increases.
- D) first decreases, then reaches its minimum and finally increases as the labour input increases.

Ans: C Level: Easy Main Topic: 11.1 Factor pricing and demand Page: 269  
Subtopic: Marginal productivity theory of factor demand Type: Graphic

19. Marginal revenue product measures the:

- A) amount by which the extra production of one more worker increases a firm's total revenue.
- B) decline in product price which a firm must accept to sell the extra output of one more worker.
- C) increase in total factor cost resulting from the hire of one extra unit of a factor.
- D) increase in total revenue resulting from the production of one more unit of a product.

Ans: A Level: Moderate Main Topic: 11.1 Factor pricing and demand  
Page: 269 Subtopic: Marginal productivity theory of factor demand  
Type: Definition

20. The marginal revenue product schedule is:

- A) the same whether the firm is selling in a perfectly competitive or imperfectly competitive market.
- B) the firm's factor demand schedule.
- C) the firm's factor supply schedule.
- D) upward-sloping.

Ans: B Level: Easy Main Topic: 11.1 Factor pricing and demand Page: 269  
Subtopic: Marginal productivity theory of factor demand Type: Definition

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21. The marginal revenue product of an input in a competitive market decreases as a firm increases the quantity of an input used because of the:
- A) law of diminishing returns.
  - B) law of diminishing marginal utility.
  - C) homogeneity of the product.
  - D) free mobility of factors.

Ans: A Level: Moderate Main Topic: 11.1 Factor pricing and demand  
Page: 269 Subtopic: Marginal productivity theory of factor demand  
Type: Application

22. The perfectly competitive employer of factor A will maximize the profits from A by equating the:
- A) price of A with the marginal revenue product of A.
  - B) marginal productivity of A with the marginal revenue cost of A.
  - C) marginal productivity of A with the price of A.
  - D) price of A with the marginal revenue cost of A.

Ans: A Level: Moderate Main Topic: 11.1 Factor pricing and demand  
Page: 269 Subtopic: Marginal productivity theory of factor demand  
Type: Application

23. The MRP curve for labour:
- A) intersects the firm's labour demand curve from above.
  - B) is the firm's labour demand curve.
  - C) lies below the firm's labour demand curve.
  - D) lies above the firm's labour demand curve.

Ans: B Level: Easy Main Topic: 11.1 Factor pricing and demand Page: 269  
Subtopic: Marginal productivity theory of factor demand Type: Definition

24. Marginal revenue product describes the:
- A) output produced by the last unit of input employed.
  - B) revenue received for the last unit of output produced.
  - C) price a consumer paid for the last unit of output produced.
  - D) revenue received for the output produced by the last unit of labour employed.

Ans: D Level: Easy Main Topic: 11.1 Factor pricing and demand Page: 269  
Subtopic: Marginal productivity theory of factor demand Type: Definition

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25. The change in a firm's total revenue which results from the hire of an additional worker is measured by:
- A) marginal product.
  - B) marginal revenue.
  - C) marginal revenue product.
  - D) average revenue product.

Ans: C Level: Easy Main Topic: 11.1 Factor pricing and demand Page: 269  
Subtopic: Marginal productivity theory of factor demand Type: Definition

26. The marginal revenue product of any input is the:
- A) cost of an additional unit of that input.
  - B) added profits resulting from the use of one more unit of that input.
  - C) additional output resulting from the use of one more unit of that input.
  - D) additional revenue resulting from the use of one more unit of that input.

Ans: D Level: Easy Main Topic: 11.1 Factor pricing and demand Page: 269  
Subtopic: Marginal productivity theory of factor demand Type: Definition

27. Marginal revenue product is the increase in:
- A) total revenue from a decrease in the price of the product.
  - B) marginal revenue from a decrease in the price of the product.
  - C) marginal revenue from the use of an additional unit of a factor.
  - D) total revenue from the use of an additional unit of a factor.

Ans: D Level: Easy Main Topic: 11.1 Factor pricing and demand Page: 269  
Subtopic: Marginal productivity theory of factor demand Type: Definition

28. The labour demand curve of a perfectly competitive seller:
- A) slopes downward because the elasticity of demand is always less than unity.
  - B) slopes downward because of diminishing marginal productivity.
  - C) is perfectly elastic at the "going" wage rate.
  - D) slopes downward because of diminishing marginal utility.

Ans: B Level: Moderate Main Topic: 11.1 Factor pricing and demand  
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Type: Application



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29. The marginal revenue product of an economic factor for a firm operating in perfectly competitive product and factor markets:
- A) is the marginal product of the factor divided by the price of the final product.
  - B) is the increase in total revenue product resulting from the addition of one more unit of the factor.
  - C) is equal to the average revenue product at the lowest point of the average revenue product curve.
  - D) decreases as the quantity of output decreases.

Ans: B Level: Moderate Main Topic: 11.1 Factor pricing and demand  
Page: 269 Subtopic: Marginal productivity theory of factor demand  
Type: Application

30. Assume labour is the only variable input and that an additional input of labour increases total output from 72 to 78 units. If the product sells for \$6 per unit in a perfectly competitive market, the MRP of this additional worker:
- A) is \$6.
  - B) is \$12.
  - C) is \$36.
  - D) is \$72.

Ans: C Level: Moderate Main Topic: 11.1 Factor pricing and demand  
Page: 269 Subtopic: Marginal productivity theory of factor demand  
Type: Calculation

31. If one worker can pick \$30 worth of grapes and two workers together can pick \$50 worth of grapes, the:
- A) marginal revenue product of each worker is \$25.
  - B) marginal revenue product of the second worker is \$20.
  - C) marginal revenue product of the first worker is \$20.
  - D) data given do not permit the determination of the marginal revenue product of either worker.

Ans: B Level: Moderate Main Topic: 11.1 Factor pricing and demand  
Page: 269 Subtopic: Marginal productivity theory of factor demand  
Type: Calculation

Use the following to answer questions 32-33:

Jones owns a barber shop and charges \$6 per haircut. By hiring one barber at \$10 per hour the shop can provide 24 haircuts per 8-hour day. By hiring a second barber at the same wage rate the shop can now provide a total of 42 haircuts per day.

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32. Refer to the information provided. The MP of the second barber is:

- A) \$240.
- B) \$108.
- C) 18.
- D) 42.

Ans: C Level: Easy Main Topic: 11.1 Factor pricing and demand Page: 269  
Subtopic: Marginal productivity theory of factor demand Type: Calculation

33. Refer to the information provided. The MRP of the second barber:

- A) is 18.
- B) is \$108.
- C) is 42.
- D) is \$24.

Ans: B Level: Moderate Main Topic: 11.1 Factor pricing and demand  
Page: 269 Subtopic: Marginal productivity theory of factor demand  
Type: Calculation

Use the following to answer questions 34-36:

The following is a total-product schedule for a factor. Assume that the quantities of other factors the firm employs remain constant.

<u>Units of factor</u>	<u>Total product</u>
1	24
2	42
3	54
4	64
5	72

34. Refer to the table. If the product the firm produces sells for a constant \$2 per unit, the marginal revenue product of the third unit of the factor is:

- A) \$12.
- B) \$20.
- C) \$36.
- D) \$24.

Ans: D Level: Moderate Main Topic: 11.1 Factor pricing and demand Page: 269  
Subtopic: Marginal productivity theory of factor demand Type: Calculation

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35. Refer to the table. If the firm's product sells for a constant \$2 and the price of a factor is \$16, the firm will employ how many units of the factor?

A) 2  
B) 3  
C) 4  
D) 5

Ans: D Level: Moderate Main Topic: 11.1 Factor pricing and demand  
Page: 269 Subtopic: Marginal productivity theory of factor demand  
Type: Calculation

36. Refer to the table. If the firm can sell 24 units of output at a price of \$1.00 and 42 units of output at a price of \$0.80, the marginal revenue product of the second unit of the factor is:

A) \$9.60.  
B) \$7.80.  
C) \$5.40.  
D) \$12.20.

Ans: A Level: Moderate Main Topic: 11.1 Factor pricing and demand  
Page: 269 Subtopic: Marginal productivity theory of factor demand  
Type: Calculation

Use the following to answer questions 37-38:

Assume that the quantities of other factors the firm employs remain constant.

Units of resource	Total product
1	12
2	21
3	27
4	32
5	36

37. Refer to the table above. If the firm's product sells for a constant \$2 per unit, what is the marginal revenue product of the third unit of the factor?

A) \$8  
B) \$10  
C) \$12  
D) \$14

Ans: C Level: Moderate Main Topic: 11.1 Factor pricing and demand  
Page: 269 Subtopic: Marginal productivity theory of factor demand  
Type: Calculation

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38. Refer to the table above. If the firm can sell 12 units of output at a price of \$1.00 per unit and 21 units of output at a price of \$0.80 per unit, what is the marginal revenue product of the second unit of the factor?

A) \$3.20  
B) \$3.80  
C) \$4.20  
D) \$4.80

Ans: D Level: Difficult Main Topic: 11.1 Factor pricing and demand Page: 269  
Subtopic: Marginal productivity theory of factor demand Type: Calculation

Use the following to answer questions 39-40:

Units of factor	0	1	2	3	4	5
Total product	0	6	11	15	18	20
Total revenue (\$)	0	36	55	60	54	40

39. Refer to the table above. The marginal product of the third unit of the factor is:

A) 3.  
B) 4.  
C) 5.  
D) 6.

Ans: B Level: Easy Main Topic: 11.1 Factor pricing and demand Page: 269  
Subtopic: Marginal productivity theory of factor demand Type: Calculation

40. Refer to the table above. The marginal revenue product of the third unit of the factor is:

A) \$3.  
B) \$5.  
C) \$19.  
D) \$36.

Ans: B Level: Moderate Main Topic: 11.1 Factor pricing and demand  
Page: 269 Subtopic: Marginal productivity theory of factor demand  
Type: Calculation

Use the following to answer questions 41-43:

Units of resource	0	1	2	3	4	5
Total product	0	10	18	24	28	30
Total revenue (\$)	0	30	54	72	84	90

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41. Refer to the table above. The marginal product of the second unit of the factor is:

- A) 4.
- B) 6.
- C) 8.
- D) 10.

Ans: C Level: Easy Main Topic: 11.1 Factor pricing and demand Page: 269  
Subtopic: Marginal productivity theory of factor demand Type: Calculation

42. Refer to the table above. The marginal product of the fifth unit of the factor is:

- A) 2.
- B) 4.
- C) 6.
- D) 8.

Ans: A Level: Easy Main Topic: 11.1 Factor pricing and demand Page: 269  
Subtopic: Marginal productivity theory of factor demand Type: Calculation

43. Refer to the table above. The marginal revenue product of the third unit of factor is:

- A) \$4.
- B) \$18.
- C) \$8.
- D) \$72.

Ans: B Level: Easy Main Topic: 11.1 Factor pricing and demand Page: 269  
Subtopic: Marginal productivity theory of factor demand Type: Calculation

Use the following to answer questions 44-45:

A farmer who has fixed amounts of land and capital finds that total product is 24 for the first worker hired; 32 when two workers are hired; 37 when three are hired; and 40 when four are hired. The farmer's product sells for \$3 per unit and the wage rate is \$13 per worker.

44. Refer to the information provided above. The marginal product of the second worker is:

- A) 24.
- B) 8.
- C) 5.
- D) 1.

Ans: B Level: Easy Main Topic: 11.1 Factor pricing and demand Page: 269  
Subtopic: Marginal productivity theory of factor demand Type: Calculation

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45. Refer to the information provided above. The marginal revenue product of the second worker is:

- A) \$24.
- B) \$8.
- C) \$15.
- D) \$9.

Ans: A Level: Easy Main Topic: 11.1 Factor pricing and demand Page: 269  
Subtopic: Marginal productivity theory of factor demand Type: Calculation

46. Marginal factor cost is:

- A) the increase in a firm's total cost caused by hiring one additional unit of an input.
- B) a firm's cost of hiring one group of inputs, such as capital or labour.
- C) the firm's demand curve for a productive factor.
- D) determined by the marginal physical product schedule for an input.

Ans: A Level: Easy Main Topic: 11.1 Factor pricing and demand Page: 269  
Subtopic: Marginal productivity theory of factor demand Type: Definition

47. Marginal factor cost is:

- A) the increase in variable costs resulting from one more unit of output.
- B) the increase in fixed costs resulting from one more unit of output.
- C) perfectly inelastic to a monopsonist.
- D) the same as the wage rate when a firm is hiring under perfectly competitive conditions.

Ans: D Level: Moderate Main Topic: 11.1 Factor pricing and demand  
Page: 269 Subtopic: Marginal productivity theory of factor demand  
Type: Definition

48. Marginal factor cost is:

- A) the increase in total factor cost associated with the production of one more unit of output.
- B) the increase in total factor cost associated with the hire of one more unit of the factor.
- C) total factor cost divided by the number of inputs employed.
- D) the change in total revenue associated with the employment of one more unit of the factor.

Ans: B Level: Easy Main Topic: 11.1 Factor pricing and demand Page: 269  
Subtopic: Marginal productivity theory of factor demand Type: Definition

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Use the following to answer questions 49-53:

Assume Manfred's Shoe Shine Parlour hires labour, its only variable input, under perfectly competitive conditions. Shoe shines are also sold competitively.

<u>Units of labour</u>	<u>Total product</u>	<u>Marginal product</u>	<u>Total revenue</u>
0	0	-	-
1	14	14	\$42
2	-	10	-
3	30	-	90
4	35	-	-
5	39	-	117
6	-	-	126
7	44	2	132

49. Refer to the data above. How many units of output are produced when 2 workers are employed?

- A) 4
- B) 16
- C) 24
- D) 10

Ans: C Level: Moderate Main Topic: 11.1 Factor pricing and demand  
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Type: Calculation

50. Refer to the data above. What is the marginal product of the sixth worker?

- A) 2 units
- B) 3 units
- C) 4 units
- D) 5 units

Ans: B Level: Difficult Main Topic: 11.1 Factor pricing and demand Page: 269  
Subtopic: Marginal productivity theory of factor demand Type: Calculation

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51. Refer to the data above. At what price does each shoe shine sell?

- A) \$1
- B) \$2
- C) \$3
- D) \$2.50

Ans: C Level: Moderate Main Topic: 11.1 Factor pricing and demand  
Page: 270 Subtopic: Marginal productivity theory of factor demand  
Type: Calculation

52. Refer to the data above. If the wage rate is \$11, how many workers will Manfred hire to maximize profits?

- A) 1
- B) 2
- C) 3
- D) 5

Ans: D Level: Difficult Main Topic: 11.1 Factor pricing and demand Page: 270  
Subtopic: Marginal productivity theory of factor demand Type: Calculation

53. Refer to the data above. If Manfred's only fixed input is capital, the total cost of which is \$30, then what will be his economic profit?

- A) \$62
- B) \$42
- C) \$28
- D) \$32

Ans: D Level: Difficult Main Topic: 11.1 Factor pricing and demand Page: 270  
Subtopic: Marginal productivity theory of factor demand Type: Calculation

Use the following to answer question 54:

Jones owns a barber shop and charges \$6 per haircut. By hiring one barber at \$10 per hour the shop can provide 24 haircuts per 8-hour day. By hiring a second barber at the same wage rate the shop can now provide a total of 42 haircuts per day.

54. Refer to the information provided. Jones should:

- A) hire the second barber because he will add \$28 to profits.
- B) hire the second barber because he will add \$108 to profits.
- C) not hire the second barber because he is less productive than the first barber.
- D) not hire the second barber because he will diminish profits.

Ans: A Level: Difficult Main Topic: 11.1 Factor pricing and demand Page: 270  
Subtopic: Marginal productivity theory of factor demand Type: Calculation



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55. A competitive employer should hire additional labour as long as:

- A) the MRP exceeds the wage rate.
- B) the wage rate is less than MP.
- C) average product exceeds MP.
- D) MC exceeds MR.

Ans: A Level: Easy Main Topic: 11.1 Factor pricing and demand Page: 270  
Subtopic: Marginal productivity theory of factor demand Type: Application

56. If a perfectly competitive firm hiring labour in a perfectly competitive labour market hires labour until  $MRP_L < W$  for the last unit of labour hired:

- A) costs are minimized.
- B) profits are maximized.
- C) labour's share of total cost is too small.
- D) labour's share of total cost is too large.

Ans: D Level: Moderate Main Topic: 11.1 Factor pricing and demand  
Page: 270 Subtopic: Marginal productivity theory of factor demand  
Type: Application

57. If the marginal revenue product (MRP) of labour is less than the wage rate:

- A) the firm is making profits.
- B) the firm is incurring losses.
- C) more labour should be employed.
- D) less labour should be employed.

Ans: D Level: Moderate Main Topic: 11.1 Factor pricing and demand  
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Type: Application

58. A competitive employer will hire inputs up to the point where the:

- A) marginal product of the input reaches a maximum.
- B) price of the input equals the price of the output.
- C) price of the input equals the marginal product of the input.
- D) price of the input equals the marginal revenue product of the input.

Ans: D Level: Moderate Main Topic: 11.1 Factor pricing and demand  
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Type: Definition

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59. A firm will find it profitable to hire workers up to the point at which their:
- A) marginal factor cost equals their wage rate.
  - B) wage rate equals product price.
  - C) MP is equal to their MRP.
  - D) marginal factor cost is equal to their MRP.

Ans: D Level: Moderate Main Topic: 11.1 Factor pricing and demand  
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Type: Application

60. A profit-maximizing firm employs factors to the point where:
- A)  $MRC = MP$ .
  - B) Factor price equals product price.
  - C)  $MRP = MRC$ .
  - D)  $MP = \text{product price}$ .

Ans: C Level: Moderate Main Topic: 11.1 Factor pricing and demand  
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61. The general rule for hiring any input (say, labour) in the profit-maximizing amount is  $MRC = MRP$ . This rule takes the special form  $W = MRP$  (where  $W$  is the wage rate) when the:
- A) labour supply curve is upward sloping.
  - B) supply of labour is inelastic.
  - C) firm is hiring labour under imperfectly competitive conditions.
  - D) firm is hiring labour under perfectly competitive conditions.

Ans: D Level: Moderate Main Topic: 11.1 Factor pricing and demand Page: 270  
Subtopic: Marginal productivity theory of factor demand Type: Application

## Chapter 11 The Demand for Factors of Production

62. Refer to the table below. If the firm's product sells for a constant \$2 per unit and the price of this factor is \$8, how many units of the factor will the firm employ?

Assume that the quantities of other factors the firm employs remain constant.

Units of resource	Total product
1	12
2	21
3	27
4	32
5	36

- A) 2
- B) 3
- C) 4
- D) 5

Ans: D Level: Moderate Main Topic: 11.1 Factor pricing and demand  
Page: 270 Subtopic: Marginal productivity theory of factor demand  
Type: Calculation

Use the following to answer questions 63-65:

Assume that the quantities of other factors employed by the firm remain constant.

Quantity of resource Y employed	Marginal product of Y	Product price
0	—	
1	44	\$2.00
2	42	1.90
3	36	1.80
4	32	1.70
5	24	1.60
6	14	1.50
7	2	1.40

63. Refer to the table above. How many units of factor Y would the firm employ at \$70?

- A) 1
- B) 2
- C) 3
- D) 4

Ans: B Level: Moderate Main Topic: 11.1 Factor pricing and demand  
Page: 270 Subtopic: Marginal productivity theory of factor demand  
Type: Calculation

## Chapter 11 The Demand for Factors of Production

64. Refer to the table above. How many units of factor Y would the firm employ at \$60?

- A) 2
- B) 5
- C) 4
- D) 3

Ans: D Level: Moderate Main Topic: 11.1 Factor pricing and demand

Page: 270 Subtopic: Marginal productivity theory of factor demand

Type: Calculation

65. Refer to the table above. How many units of factor Y would the firm employ at \$40?

- A) 2
- B) 3
- C) 4
- D) 5

Ans: C Level: Moderate Main Topic: 11.1 Factor pricing and demand

Page: 270 Subtopic: Marginal productivity theory of factor demand

Type: Calculation

66. A profit-maximizing firm's daily total revenue is \$155 with 3 workers, \$200 with 4 workers, and \$250 with 5 workers. The marginal cost of each worker is \$60 per day. The firm should:

- A) hire a fifth worker.
- B) hire four workers.
- C) hire more than five workers.
- D) none of the above.

Ans: D Level: Moderate Main Topic: 11.1 Factor pricing and demand

Page: 270 Subtopic: Marginal productivity theory of factor demand

Type: Calculation

## Chapter 11 The Demand for Factors of Production

Use the following to answer questions 67-69:

The table shows the total production a firm will be able to obtain if it employs varying amounts of factor X while the amounts of the other factors the firm employs remain constant. Assume the product the firm produces sells in the market for \$3.00 per unit.

<b>Quantity of resource X employed</b>	<b>Total product</b>
0	0
1	24
2	44
3	60
4	72
5	80
6	84
7	86

67. Refer to the table and information above. How many units of factor X will be employed at \$60?

A) 1  
B) 2  
C) 3  
D) 4

Ans: B Level: Moderate Main Topic: 11.1 Factor pricing and demand  
Page: 270 Subtopic: Marginal productivity theory of factor demand  
Type: Calculation

68. Refer to the table and information above. How many units of factor X will be employed at \$48?

A) 2  
B) 3  
C) 4  
D) 5

Ans: B Level: Moderate Main Topic: 11.1 Factor pricing and demand  
Page: 270 Subtopic: Marginal productivity theory of factor demand  
Type: Calculation

## Chapter 11 The Demand for Factors of Production

69. Refer to the table and information above above. How many units of factor X will be employed at \$24?

- A) 3
- B) 4
- C) 5
- D) 6

Ans: C Level: Moderate Main Topic: 11.1 Factor pricing and demand  
Page: 270 Subtopic: Marginal productivity theory of factor demand  
Type: Calculation

70. Under perfect competition the market price of an output is \$3. The output schedule of a firm using input X is listed in the table below. If the price of input X is \$12, how many units of input X will the firm employ to maximize profits?

<u>Units of X</u>	<u>Marginal product</u>
1	10.0
2	9.9
3	8.8
4	7.7
5	6.6
6	5.5
7	4.4
8	3.3
9	2.2

- A) 4
- B) 5
- C) 7
- D) 9

Ans: C Level: Moderate Main Topic: 11.1 Factor pricing and demand Page: 270  
Subtopic: Marginal productivity theory of factor demand Type: Calculation

71. Assume the Bully Burger restaurant is hiring labour in an amount such that the MRC of the last worker is \$16 and her MRP is \$12. On the basis of this information we can say that:

- A) profits will be increased by hiring additional workers.
- B) profits will be increased by hiring fewer workers.
- C) marginal revenue product must exceed average revenue product.
- D) the restaurant is maximizing profits.

Ans: B Level: Moderate Main Topic: 11.1 Factor pricing and demand  
Page: 270 Subtopic: Marginal productivity theory of factor demand  
Type: Application

## Chapter 11 The Demand for Factors of Production

Use the following to answer questions 72-75:

<u>Employment</u>	<u>Total product</u>	<u>Product price</u>
0	0	\$3
1	12	3
2	22	3
3	30	3
4	36	3
5	40	3
6	42	3

72. On the basis of the information we can say that the firm is:
- A) selling its product in a perfectly competitive market.
  - B) selling its product in an imperfectly competitive market.
  - C) hiring workers in a perfectly competitive market.
  - D) hiring workers in an imperfectly competitive market.

Ans: A Level: Easy Main Topic: 11.1 Factor pricing and demand Page: 270  
Subtopic: Marginal productivity theory of factor demand Type: Application

73. Refer to the data above. If the firm is hiring workers under perfectly competitive conditions at a wage rate of \$22, it will choose to employ:
- A) 1 worker.
  - B) 2 workers.
  - C) 3 workers.
  - D) 4 workers.

Ans: C Level: Moderate Main Topic: 11.1 Factor pricing and demand  
Page: 270 Subtopic: Marginal productivity theory of factor demand  
Type: Calculation

74. Refer to the data above. If the firm is hiring workers under perfectly competitive conditions at a wage rate of \$10, it will choose to employ:
- A) 2 workers.
  - B) 3 workers.
  - C) 4 workers.
  - D) 5 workers.

Ans: D Level: Moderate Main Topic: 11.1 Factor pricing and demand  
Page: 270 Subtopic: Marginal productivity theory of factor demand  
Type: Calculation

## Chapter 11 The Demand for Factors of Production

75. Refer to the data above. Which of the following best represents the labour demand schedule for this firm?

(A)		(B)		(C)		(D)	
WR	Qd	WR	Qd	WR	Qd	WR	Qd
\$35	1	\$35	2	\$35	3	\$40	1
29	2	29	3	29	4	35	2
23	3	23	4	23	5	30	3
17	4	17	5	17	6	25	4

- A) column (A)
- B) column (B)
- C) column (C)
- D) column (D)

Ans: A Level: Difficult Main Topic: 11.1 Factor pricing and demand Page: 270  
Subtopic: Marginal productivity theory of factor demand Type: Calculation

Use the following to answer questions 76-79:

The following table is for a perfectly competitive market for factors.

Number of workers	Total product	Product price (\$)
0	0	3
1	16	3
2	26	3
3	34	3
4	40	3
5	44	3

76. Refer to the table above. At a wage rate of \$11, the firm will choose to employ:

- A) 2 workers.
- B) 3 workers.
- C) 4 workers.
- D) 5 workers.

Ans: D Level: Moderate Main Topic: 11.1 Factor pricing and demand  
Page: 270 Subtopic: Marginal productivity theory of factor demand  
Type: Calculation



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77. Refer to the table above. At a wage rate of \$23, the firm will choose to employ:

- A) 2 workers.
- B) 3 workers.
- C) 4 workers.
- D) 5 workers.

Ans: B Level: Moderate Main Topic: 11.1 Factor pricing and demand

Page: 270 Subtopic: Marginal productivity theory of factor demand

Type: Calculation

78. Refer to the table. above How many more workers will the firm hire when the wage rate is \$15?

- A) 1 worker
- B) 2 workers
- C) 3 workers
- D) 4 workers

Ans: B Level: Moderate Main Topic: 11.1 Factor pricing and demand

Page: 270 Subtopic: Marginal productivity theory of factor demand

Type: Calculation

79. Refer to the table above. If the product price increases from \$3 to \$4, then at the wage rate of \$15, the firm will hire:

- A) 2 workers.
- B) 3 workers.
- C) 4 workers.
- D) 5 workers.

Ans: D Level: Difficult Main Topic: 11.1 Factor pricing and demand

Page: 270 Subtopic: Marginal productivity theory of factor demand

Type: Calculation

Use the following to answer questions 80-81:

A farmer who has fixed amounts of land and capital finds that total product is 24 for the first worker hired; 32 when two workers are hired; 37 when three are hired; and 40 when four are hired. The farmer's product sells for \$3 per unit and the wage rate is \$13 per worker.

## Chapter 11 The Demand for Factors of Production

80. Refer to the information provided above. How many workers should the farmer hire?

- A) 1
- B) 2
- C) 3
- D) 4

Ans: C Level: Moderate Main Topic: 11.1 Factor pricing and demand

Page: 270 Subtopic: Marginal productivity theory of factor demand

Type: Calculation

81. Refer to the information provided above. What is the farmer's profit-maximizing output?

- A) 20
- B) 32
- C) 37
- D) 40

Ans: C Level: Moderate Main Topic: 11.1 Factor pricing and demand

Page: 270 Subtopic: Marginal productivity theory of factor demand

Type: Calculation

82. A competitive employer is using labour in such an amount that labour's MRP is \$10 and its wage rate is \$8. This firm:

- A) should hire more labour because this will increase profits.
- B) should hire more labour, although this may either increase or decrease profits.
- C) is currently hiring the profit-maximizing amount of labour.
- D) is selling its product in an imperfectly competitive market.

Ans: A Level: Moderate Main Topic: 11.1 Factor pricing and demand

Page: 270 Subtopic: Marginal productivity theory of factor demand

Type: Application

83. A firm is hiring the profit-maximizing amount of an input when:

- A)  $AVC = MC$ .
- B)  $MP = MRC$ .
- C)  $MRC = MR$ .
- D)  $MRP = MRC$ .

Ans: D Level: Easy Main Topic: 11.1 Factor pricing and demand

Page: 270 Subtopic: Marginal productivity theory of factor demand Type: Formula

## Chapter 11 The Demand for Factors of Production

Use the following to answer questions 84-85:

<b>Units of resource</b>	0	1	2	3	4	5
<b>Total product</b>	0	10	18	24	28	30
<b>Total revenue (\$)</b>	0	30	54	72	84	90

84. Refer to the table above. The price of the product being produced by this factor is:

- A) \$3.
- B) \$2.
- C) \$1.
- D) \$4.

Ans: A Level: Moderate Main Topic: 11.1 Factor pricing and demand

Page: 270 Subtopic: Marginal productivity theory of factor demand

Type: Calculation

85. Refer to the table above. The factor demand data indicate that the firm is:

- A) buying its factor in an imperfectly competitive market.
- B) buying its factor in a perfectly competitive market.
- C) selling its product in a perfectly competitive market.
- D) selling its product in an imperfectly competitive market.

Ans: C Level: Difficult Main Topic: 11.1 Factor pricing and demand Page: 270

Subtopic: Marginal productivity theory of factor demand Type: Application

86. Assuming a firm is selling its output in a perfectly competitive market, its factor demand curve can be determined by:

- A) multiplying total product by product price.
- B) multiplying marginal product by product price.
- C) dividing total revenue by marginal product.
- D) comparing marginal product with various possible input prices.

Ans: B Level: Moderate Main Topic: 11.1 Factor pricing and demand

Page: 270 Subtopic: Marginal productivity theory of factor demand

Type: Definition

## Chapter 11 The Demand for Factors of Production

87. The MRP curve for labour:

- A) is downsloping and shows the relationship between wage rates and the quantity of labour demanded.
- B) is perfectly elastic if the firm is selling its output competitively.
- C) is upward-sloping and lies above the labour supply curve.
- D) will shift location when the wage rate changes.

Ans: A Level: Moderate Main Topic: 11.1 Factor pricing and demand  
Page: 270 Subtopic: Marginal productivity theory of factor demand  
Type: Application

88. According to the marginal productivity theory, the labour demand schedule for a competitive seller is:

- A) the same as the marginal factor cost schedule.
- B) the same as the marginal productivity schedule.
- C) the same as the marginal revenue product schedule.
- D) independent of the value of the product being produced.

Ans: C Level: Moderate Main Topic: 11.1 Factor pricing and demand  
Page: 270 Subtopic: Marginal productivity theory of factor demand  
Type: Definition

89. The labour demand schedule is identical with the:

- A) marginal revenue product schedule.
- B) marginal factor cost schedule.
- C) marginal revenue schedule.
- D) product demand schedule.

Ans: A Level: Moderate Main Topic: 11.1 Factor pricing and demand  
Page: 270 Subtopic: Marginal productivity theory of factor demand  
Type: Definition

90. Assume the Apex Manufacturing company is perfectly competitive in both the hire of labour and in the sale of its product. Apex's labour demand curve would be:

- A) vertical at the current level of employment.
- B) horizontal at the "going" wage rate.
- C) upward sloping.
- D) downward sloping.

Ans: D Level: Moderate Main Topic: 11.1 Factor pricing and demand  
Page: 270 Subtopic: Marginal productivity theory of factor demand  
Type: Application

## Chapter 11 The Demand for Factors of Production

91. The labour demand curve of a perfectly competitive seller:

- A) slopes downward because the firm must lower price to sell more output.
- B) slopes downward because labour productivity increases as successive workers are hired.
- C) is perfectly elastic because the firm is hiring an insignificant portion of the total labour supply.
- D) slopes downward because the marginal product of successive workers declines.

Ans: D Level: Moderate Main Topic: 11.1 Factor pricing and demand

Page: 270 Subtopic: Marginal productivity theory of factor demand

Type: Application

Use the following to answer questions 92-94:

Assume that the firm is hiring labour in a perfectly competitive market.

<u>Units of labour</u>	<u>Total product</u>	<u>Product price</u>
0	0	\$2.20
1	15	2.00
2	28	1.80
3	39	1.60
4	48	1.40
5	55	1.20
6	60	1.10

92. Refer to the data above. If the wage rate is \$20, how many workers will the firm choose to employ?

- A) 5
- B) 4
- C) 3
- D) 2

Ans: D Level: Moderate Main Topic: 11.1 Factor pricing and demand

Page: 270 Subtopic: Marginal productivity theory of factor demand

Type: Calculation

## Chapter 11 The Demand for Factors of Production

93. Refer to the data above. If the wage rate is \$11, how many workers will the firm choose to employ?

- A) 5
- B) 4
- C) 3
- D) 2

Ans: C Level: Moderate Main Topic: 11.1 Factor pricing and demand  
Page: 270 Subtopic: Marginal productivity theory of factor demand  
Type: Calculation

94. The data above reveal that:

- A) the firm is selling its product in a perfectly competitive market.
- B) the firm is selling its product in an imperfectly competitive market.
- C) there is no level of output at which this firm can operate at a profit.
- D) the law of diminishing returns is not applicable to this firm.

Ans: B Level: Moderate Main Topic: 11.1 Factor pricing and demand  
Page: 270-271 Subtopic: Marginal productivity theory of factor demand  
Type: Application

95. Other things the same, we would expect the labour demand curve of a perfectly competitive seller to be:

- A) of unitary elasticity.
- B) more elastic than that of an imperfectly competitive seller.
- C) less elastic than that of an imperfectly competitive seller.
- D) perfectly elastic.

Ans: B Level: Moderate Main Topic: 11.1 Factor pricing and demand  
Page: 270-271 Subtopic: Marginal productivity theory of factor demand  
Type: Application

96. Other things equal, the factor demand curve of an imperfectly competitive seller will:

- A) lie below its marginal revenue product curve.
- B) not be subject to diminishing marginal productivity.
- C) be less elastic than that of a perfectly competitive seller.
- D) be more elastic than that of a perfectly competitive seller.

Ans: C Level: Moderate Main Topic: 11.1 Factor pricing and demand  
Page: 270-271 Subtopic: Marginal productivity theory of factor demand  
Type: Application

## Chapter 11 The Demand for Factors of Production

97. Refer to the table below. If the firm can produce 24 units at a price of \$1.00, 42 units at a price of \$0.80, and 54 units at a price of \$0.60, then the firm is:

The following is a total-product schedule for a factor. Assume that the quantities of other factors the firm employs remain constant.

<u>Units of factor</u>	<u>Total product</u>
1	24
2	42
3	54
4	64
5	72

- A) selling in a perfectly competitive market.
- B) selling in an imperfectly competitive market.
- C) minimizing its costs at a product price of \$1.00.
- D) maximizing profits at a product price of \$0.60.

Ans: B Level: Easy Main Topic: 11.1 Factor pricing and demand  
Page: 270-271 Subtopic: Marginal productivity theory of factor demand  
Type: Application

Use the following to answer questions 98-100:

Units of factor	0	1	2	3	4	5
Total product	0	6	11	15	18	20
Total revenue (\$)	0	36	55	60	54	40

98. Refer to the table above. The factor demand data indicate that the firm is:

- A) buying its factor in an imperfectly competitive market.
- B) buying its factor in a perfectly competitive market.
- C) selling its product in a perfectly competitive market.
- D) selling its product in an imperfectly competitive market.

Ans: D Level: Moderate Main Topic: 11.1 Factor pricing and demand  
Page: 270-271 Subtopic: Marginal productivity theory of factor demand  
Type: Application

## Chapter 11 The Demand for Factors of Production

99. Refer to the table above. The price of the product being produced by this factor:

- A) is a constant \$3.
- B) is a constant \$4.
- C) varies from \$2 to \$6.
- D) varies from \$7 to \$12.

Ans: C Level: Moderate Main Topic: 11.1 Factor pricing and demand  
Page: 271-272 Subtopic: Marginal productivity theory of factor demand  
Type: Calculation

100. Refer to the table above. How many units of a factor would the profit-maximizing firm use if the price of this factor was \$19.00?

- A) 1
- B) 2
- C) 3
- D) 4

Ans: B Level: Moderate Main Topic: 11.1 Factor pricing and demand  
Page: 271-272 Subtopic: Marginal productivity theory of factor demand  
Type: Calculation

101. The labour demand curve of a firm which is selling its product in an imperfectly competitive market will:

- A) fall, solely because of the law of diminishing returns.
- B) fall, solely because marginal productivity is declining.
- C) be perfectly elastic if the firm is hiring labour competitively.
- D) fall, both because of declining marginal productivity and declining product prices.

Ans: D Level: Difficult Main Topic: 11.1 Factor pricing and demand  
Page: 271-272 Subtopic: Marginal productivity theory of factor demand  
Type: Application

102. The MRP curve is the factor demand curve for:

- A) neither the perfectly competitive nor the imperfectly competitive seller.
- B) the imperfectly competitive seller, but not the perfectly competitive seller.
- C) the perfectly competitive seller, but not the imperfectly competitive seller.
- D) both the perfectly competitive and imperfectly competitive seller.

Ans: D Level: Easy Main Topic: 11.1 Factor pricing and demand  
Page: 271-272 Subtopic: Marginal productivity theory of factor demand  
Type: Definition



## Chapter 11 The Demand for Factors of Production

103. The labour demand curve of an imperfectly competitive seller is downward sloping:
- A) solely because of diminishing marginal utility.
  - B) both because of diminishing returns and the necessity to lower price to sell more output.
  - C) solely because product price must be reduced to sell more output.
  - D) solely because of diminishing returns.

Ans: B Level: Moderate Main Topic: 11.1 Factor pricing and demand  
Page: 271-272 Subtopic: Marginal productivity theory of factor demand  
Type: Application

104. If a firm is selling in an imperfectly competitive product market, then:
- A) average product will be less than marginal product for any number of workers hired.
  - B) the marginal products of successive workers must be sold at lower prices.
  - C) the marginal products of successive workers can be sold at higher prices.
  - D) the marginal products of successive workers can be sold at a constant price.

Ans: B Level: Moderate Main Topic: 11.1 Factor pricing and demand  
Page: 271-272 Subtopic: Marginal productivity theory of factor demand  
Type: Application

105. Other things equal, we would expect the labour demand curve of a monopolistic seller to:
- A) decline more rapidly than that of a perfectly competitive seller.
  - B) decline less rapidly than that of a perfectly competitive seller.
  - C) decline at the same rate as that of a perfectly competitive seller.
  - D) be more elastic than that of a perfectly competitive seller.

Ans: A Level: Difficult Main Topic: 11.1 Factor pricing and demand  
Page: 271-272 Subtopic: Marginal productivity theory of factor demand  
Type: Application

106. If the wage rate increases:
- A) a perfectly competitive producer will hire less labour, but an imperfectly competitive producer will not.
  - B) an imperfectly competitive producer will hire less labour, but a perfectly competitive producer will not.
  - C) a perfectly competitive and an imperfectly competitive producer will both hire less labour.
  - D) an imperfectly competitive producer may find it profitable to hire either more or less labour.

Ans: C Level: Moderate Main Topic: 11.1 Factor pricing and demand  
Page: 271-272 Subtopic: Marginal productivity theory of factor demand  
Type: Application

## Chapter 11 The Demand for Factors of Production

107. A decrease in the price of a productive factor will result in each of the following except a(n):
- A) downward shift in the average-cost curves for all products which use the factor.
  - B) increase in the quantities produced and sold of all products which use the factor.
  - C) rightward shift in the demand curves for all products which use the factor.
  - D) increase in the quantity demanded of this productive factor.

Ans: C Level: Difficult Main Topic: 11.2 Determinants of factor demand  
Page: 273 Subtopic: Changes in product demand Type: Application

108. The demand for a factor will increase if the:
- A) price of the factor increases.
  - B) quantity of the factor decreases.
  - C) price of the product the firm is producing decreases.
  - D) price of the product the firm is producing increases.

Ans: D Level: Moderate Main Topic: 11.2 Determinants of factor demand  
Page: 273 Subtopic: Changes in product demand Type: Application

109. Suppose the demand for strawberries rises sharply, resulting in an increased price of strawberries. As it relates to strawberry pickers, we could expect the:
- A) MRP curve to shift to the right.
  - B) MRP curve to shift to the left.
  - C) MRC curve to shift downward.
  - D) MP curve to shift downward.

Ans: A Level: Moderate Main Topic: 11.2 Determinants of factor demand  
Page: 273 Subtopic: Changes in product demand Type: Application

110. The labour demand curve of a firm:
- A) will shift to the left if the price of the product the labour is producing falls.
  - B) is perfectly elastic if the firm is selling its product in a perfectly competitive market.
  - C) reflects a direct relationship between the number of workers hired and the money wage rate.
  - D) is the same as its marginal product curve.

Ans: A Level: Moderate Main Topic: 11.2 Determinants of factor demand  
Page: 273 Subtopic: Changes in product demand Type: Application

## Chapter 11 The Demand for Factors of Production

111. Which is an example of a change in product demand that increases labour demand?
- A) Access to computers increases the productivity of mail order businesses, thus increasing the demand for their workers.
  - B) Tourism increases in popularity, increasing the demand for workers at tourist resorts.
  - C) A decrease in the price of trucks decreases the cost of transporting goods, thus increasing the demand for truckers.
  - D) A change in work rules increases output per worker in the auto industry, thus increasing the demand for auto workers.

Ans: B Level: Moderate Main Topic: 11.2 Determinants of factor demand  
Page: 273 Subtopic: Changes in product demand Type: Application

112. Which of the following will not shift the demand curve for labour?
- A) the use of a larger stock of capital with the labour force
  - B) a change in the wage rate
  - C) an increase in the price of the product which labour is helping to produce
  - D) the adoption of a more efficient method of combining labour and capital in the productive process

Ans: B Level: Moderate Main Topic: 11.2 Determinants of factor demand  
Page: 273 Subtopic: Changes in product demand Type: Application

113. Gambling increases in popularity, thus increasing the demand for card dealers at casinos. This would be caused by which of the following?
- A) An increase in labour productivity
  - B) An increase in product demand
  - C) A decrease in the price of another factor
  - D) An increase in the price of another factor

Ans: B Level: Moderate Main Topic: 11.2 Determinants of factor demand  
Page: 273 Subtopic: Changes in product demand Type: Application

114. Which is an example of a change in product demand that decreases labour demand?
- A) An increase in the price of paper increases the cost of making books, thus decreasing the demand for bookbinders.
  - B) The widespread availability of convenience stores reduces the demand for workers delivering milk to homes.
  - C) An increase in the price of steel increases the cost of producing cars and trucks, thus decreasing the demand for automobile workers.
  - D) A decline in productivity in retailing decreases the demand for retail sales workers.

Ans: B Level: Difficult Main Topic: 11.2 Determinants of factor demand  
Page: 273 Subtopic: Changes in product demand Type: Application

## Chapter 11 The Demand for Factors of Production

115. A change in the price of an input will usually:

- A) shift a firm's cost curves.
- B) cause the firm to alter the combination of inputs it employs.
- C) induce the firm to change its level of output.
- D) do all of the above.

Ans: D Level: Moderate Main Topic: 11.2 Determinants of factor demand  
Page: 273 Subtopic: Changes in product demand Type: Application

116. Employers will hire more units of a factor if:

- A) the price of the factor increases.
- B) the productivity of the factor increases.
- C) the price of the good being produced declines.
- D) the price of a complementary factor rises.

Ans: B Level: Moderate Main Topic: 11.2 Determinants of factor demand  
Page: 274 Subtopic: Changes in productivity Type: Application

117. The demand curve for labour would shift leftward as the result of:

- A) an increase in the price of the product labour is producing.
- B) a decrease in the productivity of labour.
- C) an increase in the price of labour.
- D) a decrease in the price of capital, provided the output effect exceeds the substitution effect.

Ans: B Level: Easy Main Topic: 11.2 Determinants of factor demand Page: 274  
Subtopic: Changes in productivity Type: Application

118. Which is an example of a change in productivity that increases labour demand?

- A) Mail-order catalogue sales rise, thus increasing the demand for workers in the mail-order business.
- B) Sport utility vehicles increase in popularity, thus increasing the demand for the workers who make them.
- C) A decrease in the price of lumber decreases the cost of building homes, thus increasing the demand for construction workers.
- D) A technological change increases output per worker in the computer industry, thus increasing the demand for computer workers.

Ans: D Level: Moderate Main Topic: 11.2 Determinants of factor demand  
Page: 274 Subtopic: Changes in productivity Type: Application

## Chapter 11 The Demand for Factors of Production

119. Which is an example of a change in productivity that decreases labour demand?
- A) A financial crisis in Asian nations reduces the demand for exports to Asia, thus decreasing the demand for domestic workers in the computer industry.
  - B) Tattoos fade in popularity, thus decreasing the demand for tattoo artists.
  - C) More government regulation decreases output per worker in the fast food industry, thus decreasing demand for fast food workers.
  - D) An increase in the price of construction equipment reduces the demand for construction equipment operators

Ans: C Level: Difficult Main Topic: 11.2 Determinants of factor demand  
Page: 274 Subtopic: Changes in productivity Type: Application

120. Suppose a technological improvement increases the productivity of a firm's capital and, simultaneously, its workers' union negotiates a wage increase. We can predict that:
- A) the firm will use relatively more capital and relatively less labour.
  - B) the firm will use relatively more labour and relatively less capital.
  - C) inputs of capital and labour will be unchanged.
  - D) the firm's equilibrium output will necessarily increase.

Ans: A Level: Moderate Main Topic: 11.2 Determinants of factor demand  
Page: 274-275 Subtopic: Changes in the prices of other factors Type: Application

121. Which of the following will not cause a shift in the demand for factor X?
- A) a decline in the price of factor X
  - B) an increase in the price of the product factor X is producing
  - C) a decrease in the price of substitute factor Y
  - D) an increase in the productivity of factor X

Ans: A Level: Moderate Main Topic: 11.2 Determinants of factor demand  
Page: 274-275 Subtopic: Changes in the prices of other factors Type: Application

122. Which is an example of a change in the price of another factor that decreases labour demand?
- A) A decline in the demand for computers in Europe reduces the demand for workers in the domestic computer industry.
  - B) The rise of hair salons for both men and women reduces the demand for barbers.
  - C) A decrease in the educational skills of manufacturing workers decreases the demand for such workers.
  - D) An increase in the price of chemical equipment increases the cost of producing fertilizer, thus decreasing the demand for workers who make fertilizer.

Ans: D Level: Difficult Main Topic: 11.2 Determinants of factor demand  
Page: 274-275 Subtopic: Changes in the prices of other factors Type: Application

## Chapter 11 The Demand for Factors of Production

123. An increase in the price of aluminum increases the cost of producing aluminum and reduces the demand for auto workers. This would be caused by which change in a determinant of labour demand?

- A) A fall in labour productivity
- B) An increase in product demand
- C) A decrease in product demand
- D) An increase in the price of another factor

Ans: D Level: Moderate Main Topic: 11.2 Determinants of factor demand  
Page: 274-275 Subtopic: Changes in the prices of other factors Type: Application

124. Which is an example of a change in the price of another factor that increases labour demand?

- A) Software sales rise, thus increasing the demand for software developers.
- B) Snowboarding increases in popularity, thus increasing the demand for the workers who make snowboards.
- C) A decrease in the price of wood decreases the cost of furniture, thus increasing the demand for furniture workers.
- D) A technological change increases output per worker in the computer industry, thus increasing the demand for computer workers.

Ans: C Level: Moderate Main Topic: 11.2 Determinants of factor demand  
Page: 274-275 Subtopic: Changes in the prices of other factors Type: Application

125. A manufacturer using both capital and labour decides to use more labour and less capital as a consequence of an increase in the price of capital. This is likely the result of:

- A) capital and labour being complementary inputs.
- B) capital and labour being substitute inputs.
- C) the output effect being greater than the substitution effect.
- D) diminishing returns being applicable to capital but not to labour.

Ans: B Level: Moderate Main Topic: 11.2 Determinants of factor demand  
Page: 274-275 Subtopic: Changes in the prices of other factors Type: Application

126. If two inputs are complementary and employed in fixed proportions, an increase in the price of one input will:

- A) decrease the demand for the other input.
- B) increase the demand for the other input.
- C) increase the quantity demanded for the other input.
- D) have no effect on the demand for the other input.

Ans: A Level: Easy Main Topic: 11.2 Determinants of factor demand  
Page: 274-275 Subtopic: Changes in the prices of other factors Type: Application

## Chapter 11 The Demand for Factors of Production

127. A decline in the price of factor A will:

- A) increase the demand for complementary factor B.
- B) shift the demand curve for A to the left.
- C) shift the demand curve for A to the right.
- D) reduce the demand for complementary factor B.

Ans: A Level: Moderate Main Topic: 11.2 Determinants of factor demand

Page: 274-275 Subtopic: Changes in the prices of other factors Type: Application

128. Assume the price of capital doubles and, as a result, firms make no change in the relative quantities of capital and labour they employ. This implies that:

- A) labour is not readily substitutable for capital.
- B) the law of diminishing returns is not applicable.
- C) the firms are producing an inferior good.
- D) the demand for capital is highly price elastic.

Ans: A Level: Moderate Main Topic: 11.2 Determinants of factor demand

Page: 274-275 Subtopic: Changes in the prices of other factors Type: Application

129. "A firm will employ more of an input whose relative price has fallen and, conversely, will use less of an input whose relative price has risen. Thus a fall in the price of capital will increase the relative price of labour and thereby reduce the demand for labour." This describes the:

- A) output effect.
- B) substitution effect.
- C) idea of derived demand.
- D) law of diminishing returns.

Ans: B Level: Moderate Main Topic: 11.2 Determinants of factor demand

Page: 274-275 Subtopic: Changes in the prices of other factors Type: Definition

130. Capital and labour:

- A) are always complementary.
- B) are always substitutable.
- C) may be either complementary or substitutable.
- D) are both normal inputs.

Ans: C Level: Easy Main Topic: 11.2 Determinants of factor demand

Page: 274-275 Subtopic: Changes in the prices of other factors Type: Application



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131. Suppose capital is readily substitutable for labour and that the price of capital falls. We can conclude that the:

- A) substitution effect will tend to reduce the demand for labour.
- B) output effect will tend to reduce the demand for labour.
- C) demand for labour will necessarily decline.
- D) demand for labour will necessarily increase.

Ans: A Level: Moderate Main Topic: 11.2 Determinants of factor demand

Page: 274-275 Subtopic: Changes in the prices of other factors Type: Application

132. The demand curve for labour will most likely increase when the price of a:

- A) complementary input increases, provided the substitution effect is greater than the output effect.
- B) substitute input decreases, provided the output effect is greater than the substitution effect.
- C) substitute input increases, provided the output effect is greater than the substitution effect.
- D) substitute input decreases, provided the substitution effect is greater than the output effect.

Ans: B Level: Difficult Main Topic: 11.2 Determinants of factor demand

Page: 274-275 Subtopic: Changes in the prices of other factors Type: Application

133. Suppose the productivity of labour increases and at the same time the price of capital, which is complementary to labour, increases. As a result, the demand for labour:

- A) will increase.
- B) will decrease.
- C) may either increase or decrease.
- D) will not change.

Ans: C Level: Difficult Main Topic: 11.2 Determinants of factor demand

Page: 274-275 Subtopic: Changes in the prices of other factors Type: Application

134. If two factors are highly substitutable for one another:

- A) a decrease in the price of one will increase unit costs of production.
- B) an increase in the price of one will increase the demand for the other.
- C) an increase in the price of one will reduce the demand for the other.
- D) a decline in the price of one will increase the demand for the other.

Ans: B Level: Moderate Main Topic: 11.2 Determinants of factor demand

Page: 274-275 Subtopic: Changes in the prices of other factors Type: Application



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135. The substitution effect indicates that a profit-seeking firm will use:
- A) more of an input whose price has fallen and less of other inputs in producing a given output.
  - B) more of all inputs if production costs fall.
  - C) more of those inputs whose marginal productivity is the greatest.
  - D) less of an input whose price has fallen and more of other inputs in producing a given output.

Ans: A Level: Moderate Main Topic: 11.2 Determinants of factor demand  
Page: 274-275 Subtopic: Changes in the prices of other factors Type: Definition

136. Suppose the price of the product which labour is producing increases and simultaneously the price of capital, which is substitutable for labour, decreases. Assuming that the substitution effect is greater than the output effect, the demand for labour:
- A) will increase.
  - B) will decrease.
  - C) may either increase or decrease.
  - D) will not change.

Ans: C Level: Difficult Main Topic: 11.2 Determinants of factor demand  
Page: 274-275 Subtopic: Changes in the prices of other factors Type: Application

137. Suppose there is a decline in the demand for the product labour is producing. Furthermore, the price of capital, which is complementary to labour, increases. Thus the demand for labour:
- A) will increase.
  - B) will decrease.
  - C) may either increase or decrease.
  - D) will not change.

Ans: B Level: Difficult Main Topic: 11.2 Determinants of factor demand  
Page: 274-275 Subtopic: Changes in the prices of other factors Type: Application

138. If factors A and B are complementary and employed in fixed proportions:
- A) a change in the price of A will have no effect on the quantity of B employed.
  - B) an increase in the price of A may either increase or decrease the demand for B.
  - C) an increase in the price of A will increase the demand for B.
  - D) an increase in the price of A will decrease the demand for B.

Ans: D Level: Moderate Main Topic: 11.2 Determinants of factor demand  
Page: 274-275 Subtopic: Changes in the prices of other factors Type: Application

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139. If the price of labour falls relative to the price of capital, and as a result the quantity of capital employed decreases, it can be concluded that:

- A) the substitution effect is greater than the output effect.
- B) the output effect is greater than the substitution effect.
- C) the income effect is greater than the output effect.
- D) labour cannot be easily substituted for capital.

Ans: A Level: Moderate Main Topic: 11.2 Determinants of factor demand

Page: 274-275 Subtopic: Changes in the prices of other factors Type: Application

140. Assume that a firm's production technique is such that varying combinations of labour and capital can be used to produce output. If the price of labour falls relative to the price of capital and the firm decides to use more labour in the production process, this decision is:

- A) solely the result of the substitution effect.
- B) solely the result of the output effect.
- C) probably the result of both the substitution and output effects.
- D) the result of neither the substitution nor the output effect.

Ans: C Level: Difficult Main Topic: 11.2 Determinants of factor demand

Page: 274-275 Subtopic: Changes in the prices of other factors Type: Application

141. Suppose that the price of capital increases relative to the wage rate and, as a result, the demand for labour increases. This means that:

- A) the substitution effect is greater than the output effect.
- B) labour and capital are complementary factors.
- C) it is impossible to substitute labour for capital.
- D) the output effect is greater than the substitution effect.

Ans: A Level: Moderate Main Topic: 11.2 Determinants of factor demand

Page: 274-275 Subtopic: Changes in the prices of other factors Type: Application

142. Assume the price of capital falls relative to the price of labour and, as a result, the demand for labour increases. Therefore:

- A) the output effect is greater than the substitution effect.
- B) capital is very highly substitutable for labour.
- C) the income effect is greater than the output effect.
- D) the substitution effect is greater than the output effect.

Ans: A Level: Difficult Main Topic: 11.2 Determinants of factor demand

Page: 274-275 Subtopic: Changes in the prices of other factors Type: Application

## Chapter 11 The Demand for Factors of Production

143. A major reason for the increased demand for fast-food workers is:
- A) the demonstrated nutritional quality of fast foods.
  - B) that more women have entered the labour force, causing families to substitute restaurant meals for home-prepared meals.
  - C) that the minimum wage has increased, making such jobs more attractive to workers.
  - D) that the price of home-prepared meals has fallen relative to the price of restaurant meals.

Ans: B Level: Difficult Main Topic: 11.2 Determinants of factor demand  
Page: 274-275 Subtopic: Changes in the prices of other factors Type: Application

144. The rapid decline in the price of personal computers has:
- A) increased the demand for software programmers.
  - B) increased the demand for office workers in those offices where computers and office workers are substitute factors.
  - C) reduced the demand for office workers in those offices where computers and office workers are complementary factors.
  - D) reduced the demand for sales clerks in computer stores.

Ans: A Level: Moderate Main Topic: 11.2 Determinants of factor demand  
Page: 274-275 Subtopic: Changes in the prices of other factors Type: Application

145. The output effect occurs:
- A) only when wage elasticity of demand is greater than "1."
  - B) because a change in the price of a factor will alter costs and therefore the equilibrium output.
  - C) only when the inputs being employed are substitutes.
  - D) only when the inputs being employed are complementary.

Ans: B Level: Moderate Main Topic: 11.2 Determinants of factor demand  
Page: 275 Subtopic: Changes in the prices of other factors Type: Application

146. "A change in an input price will alter both production costs and the profit-maximizing output. Thus a decline in the price of capital will reduce production costs, increase the profit-maximizing output, and thereby increase the demand for labour." This describes the:
- A) output effect.
  - B) substitution effect.
  - C) idea of derived demand.
  - D) law of diminishing returns.

Ans: A Level: Moderate Main Topic: 11.2 Determinants of factor demand  
Page: 275 Subtopic: Changes in the prices of other factors Type: Definition

## Chapter 11 The Demand for Factors of Production

147. Suppose complementary inputs A and B are being used by a firm in the profit-maximizing amounts. If the price of A now increases, the firm should use:
- A) more of B, provided the substitution effect exceeds the output effect.
  - B) more of B because of the substitution effect.
  - C) less of B because of the substitution effect.
  - D) less of B because of the output effect.

Ans: D Level: Moderate Main Topic: 11.2 Determinants of factor demand  
Page: 275 Subtopic: Changes in the prices of other factors Type: Application

148. If technology dictates that labour and capital must be used in fixed proportions, an increase in the price of capital will cause a firm to use:
- A) more labour as a consequence of the substitution effect.
  - B) more labour as a consequence of the output effect.
  - C) less labour as a consequence of the substitution effect.
  - D) less labour as a consequence of the output effect.

Ans: D Level: Moderate Main Topic: 11.2 Determinants of factor demand  
Page: 275 Subtopic: Changes in the prices of other factors Type: Application

149. Suppose capital and labour are used in fixed proportions so that each machine requires only one worker. If a decline in the price of capital occurs, then the demand for labour will:
- A) decline solely because of the substitution effect.
  - B) increase solely because of the substitution effect.
  - C) increase solely because of the output effect.
  - D) decrease solely because of the output effect.

Ans: C Level: Moderate Main Topic: 11.2 Determinants of factor demand  
Page: 275 Subtopic: Changes in the prices of other factors Type: Application

150. The elasticity of factor demand measures the:
- A) responsiveness of workers to changes in wage rates.
  - B) responsiveness of producers to changes in factor prices.
  - C) ratio of marginal revenue product to factor price.
  - D) sensitivity of marginal revenue product to changes in product price.

Ans: B Level: Easy Main Topic: 11.3 Elasticity of factor demand  
Page: 276 Subtopic: Elasticity of factor demand Type: Definition

## Chapter 11 The Demand for Factors of Production

Use the following to answer questions 151-152:

Wage rate	Quantity of labour demanded
\$16	2000
14	1600
12	1200
10	1000
8	800

151. Refer to the data above. For the \$16 to \$14 range of wage rates, labour demand is:

- A) perfectly elastic.
- B) elastic.
- C) perfectly inelastic.
- D) inelastic.

Ans: B Level: Moderate Main Topic: 11.3 Elasticity of factor demand

Page: 276 Subtopic: Elasticity of factor demand Type: Calculation

152. Refer to the data above. Over the \$10 to \$8 range of wage rates, the demand for labour is:

- A) perfectly elastic.
- B) elastic.
- C) unit elastic.
- D) inelastic.

Ans: C Level: Moderate Main Topic: 11.3 Elasticity of factor demand

Page: 276 Subtopic: Elasticity of factor demand Type: Calculation

153. If a 10 percent wage increase in a particular labour market results in a 5 percent decline in employment in that market, labour demand is:

- A) unit elastic.
- B) elastic.
- C) inelastic.
- D) perfectly elastic.

Ans: C Level: Moderate Main Topic: 11.3 Elasticity of factor demand

Page: 276 Subtopic: Elasticity of factor demand Type: Application

## Chapter 11 The Demand for Factors of Production

154. A firm is observed using 10 units of input X when the price of X is \$2, and 15 units of X when its price increases to \$4. What is the elasticity of demand for input X in this price range?

- A)  $1/2 = .5$
- B)  $3/5 = .6$
- C)  $5/3 = 1.67$
- D) 2

Ans: B Level: Moderate Main Topic: 11.3 Elasticity of factor demand  
Page: 276 Subtopic: Elasticity of factor demand Type: Calculation

155. What will the elasticity of factor demand be if unit wages rise by 8 percent and the number of employed workers falls by 5 percent?

- A) 0.63
- B) 1.61
- C) 2.90
- D) 4.00

Ans: A Level: Moderate Main Topic: 11.3 Elasticity of factor demand  
Page: 276 Subtopic: Elasticity of factor demand Type: Calculation

156. What will the elasticity of factor demand be if unit wages rise by 5 percent and the number of employed workers falls by 12 percent?

- A) 0.42
- B) 1.60
- C) 2.40
- D) 6.00

Ans: C Level: Moderate Main Topic: 11.3 Elasticity of factor demand  
Page: 276 Subtopic: Elasticity of factor demand Type: Calculation

157. The elasticity of factor demand will be greater the:

- A) smaller the portion of the product's total costs accounted for by the factor.
- B) less the elasticity of demand for the product it is producing.
- C) larger the number of substitute factors which are available.
- D) more rapid the rate of decline in its marginal product.

Ans: C Level: Moderate Main Topic: 11.3 Elasticity of factor demand  
Page: 277 Subtopic: Ease of factor substitutability Type: Application

## Chapter 11 The Demand for Factors of Production

158. Other things being equal, if a once-competitive firm attains a high degree of monopoly power, its factor demand curve will:
- A) become perfectly inelastic.
  - B) remain perfectly elastic.
  - C) become more elastic.
  - D) become more inelastic.

Ans: D Level: Moderate Main Topic: 11.3 Elasticity of factor demand  
Page: 277 Subtopic: Ease of factor substitutability Type: Application

159. The more inelastic the demand for a factor the:
- A) less elastic its marginal revenue product curve.
  - B) more elastic its marginal revenue product curve.
  - C) greater the potential for factor substitution.
  - D) greater the productivity of the factor.

Ans: A Level: Moderate Main Topic: 11.3 Elasticity of factor demand  
Page: 277 Subtopic: Ease of factor substitutability Type: Application

160. Other things being equal, a firm's demand for labour is likely to be more elastic than its demand for capital if:
- A) labour costs are a smaller proportion of total costs than capital costs.
  - B) the firm uses labour-intensive production techniques.
  - C) substitutions of one factor for another are difficult.
  - D) the demand for its final product is price elastic.

Ans: B Level: Difficult Main Topic: 11.3 Elasticity of factor demand Page: 277  
Subtopic: Ease of factor substitutability Type: Application

161. The demand for labour would most likely become less inelastic as a result of a decrease in the:
- A) elasticity of the demand for the product that the labour produces.
  - B) time for employers to make technological changes or purchase new equipment.
  - C) proportion of labour costs to total costs.
  - D) rate at which marginal revenue product declines.

Ans: D Level: Moderate Main Topic: 11.3 Elasticity of factor demand  
Page: 277 Subtopic: Ease of factor substitutability Type: Application

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162. Which of the following statements is incorrect? Other things equal, the demand for labour will be less elastic the:

- A) more rapid the decline in marginal product.
- B) greater the difficulty in substituting other inputs for labour.
- C) greater the elasticity of product demand.
- D) smaller the ratio of labour costs to total costs.

Ans: C Level: Moderate Main Topic: 11.3 Elasticity of factor demand  
Page: 277 Subtopic: Elasticity of product demand Type: Application

163. Other things being equal, the demand for a factor of production will be less elastic if the demand for the final product it produces is:

- A) elastic.
- B) inelastic.
- C) unitary elastic.
- D) perfectly elastic.

Ans: B Level: Moderate Main Topic: 11.3 Elasticity of factor demand  
Page: 277 Subtopic: Elasticity of product demand Type: Application

164. The relationship between the elasticity of product demand and the elasticity of demand for labour employed in its production is such that, other things being equal:

- A) the more elastic the demand for the product, the less elastic the demand for labour.
- B) the more elastic the demand for the product, the more elastic the demand for labour.
- C) the elasticity of product demand only affects the elasticity of labour demand when the product market is perfectly competitive.
- D) if product demand is perfectly elastic, labour demand will be perfectly inelastic.

Ans: B Level: Difficult Main Topic: 11.3 Elasticity of factor demand Page: 277  
Subtopic: Elasticity of product demand Type: Application

165. A change in a factor's price will have a greater effect on the quantity of the factor demanded the:

- A) smaller the change in the factor's price.
- B) smaller the factor's share of total cost of production.
- C) more elastic is the demand for the product the factor helps to make.
- D) more inelastic is the demand for the product the factor helps to make.

Ans: C Level: Moderate Main Topic: 11.3 Elasticity of factor demand  
Page: 277 Subtopic: Elasticity of product demand Type: Application



## Chapter 11 The Demand for Factors of Production

166. Assume that the coefficient of elasticity of product demand is .5 in industry A and is 3.2 in industry B. Other things equal, labour demand will be:
- A) more elastic in industry A than in B.
  - B) unit elastic in both industry A and B.
  - C) more elastic in industry B than in A.
  - D) relatively inelastic in both industry A and B.

Ans: C Level: Moderate Main Topic: 11.3 Elasticity of factor demand  
Page: 277 Subtopic: Elasticity of product demand Type: Application

167. The elasticity of demand for labour varies:
- A) directly with changes in the interest rate.
  - B) directly with labour's share of the total cost of the product.
  - C) inversely with the elasticity of demand for the final product.
  - D) inversely with the ease of substituting labour for other productive factors.

Ans: B Level: Moderate Main Topic: 11.3 Elasticity of factor demand  
Page: 277 Subtopic: Elasticity of product demand Type: Application

168. A firm is both hiring labour and selling output in perfectly competitive markets and is maximizing profits. It is, currently, operating in the elastic range of its MRP curve. If the wage rate increases, its total spending on wages at the new equilibrium will:
- A) be larger
  - B) be smaller.
  - C) be unchanged.
  - D) change in an undetermined direction.

Ans: B Level: Difficult Main Topic: 11.3 Elasticity of factor demand Page: 277  
Subtopic: Ratio of factor cost to total cost Type: Application

169. Which would result in a decrease in the elasticity of demand for a particular factor?
- A) a decrease in the rate at which the marginal product of that factor declines
  - B) an increase in the elasticity of demand for the product that the factor helps to produce
  - C) a decrease in the percentage of the firm's total costs accounted for by the factor
  - D) an increase in the number of other factors that are good substitutes for the particular factor

Ans: C Level: Moderate Main Topic: 11.3 Elasticity of factor demand  
Page: 277 Subtopic: Ratio of factor cost to total cost Type: Application

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170. Suppose that the labour cost-total cost ratio in industry A is 82 percent while in industry B it is 21 percent. Other things equal, labour demand will be:
- A) more elastic in industry A than in B.
  - B) unit elastic in both industry A and B.
  - C) more elastic in industry B than in A.
  - D) relatively elastic in both industry A and B.

Ans: A Level: Moderate Main Topic: 11.3 Elasticity of factor demand  
Page: 277 Subtopic: Ratio of factor cost to total cost Type: Application

171. Other things equal, the relationship between the relative importance of a given type of labour in a firm's total costs and the elasticity of demand for that labour is such that the:
- A) demand for labour will be "elastic" only if labour accounts for less than 50 percent of total costs.
  - B) demand for labour will be "elastic" only if labour accounts for 50 percent or more of total costs.
  - C) larger the labour cost-total cost ratio, the smaller will be the elasticity of labour demand.
  - D) larger the labour cost-total cost ratio, the greater will be the elasticity of labour demand.

Ans: D Level: Difficult Main Topic: 11.3 Elasticity of factor demand Page: 277  
Subtopic: Ratio of factor cost to total cost Type: Application

172. Other things equal, if wage rates increased by 20 percent, the greatest decline in employment would occur when labour costs are a:
- A) large proportion of total costs and product demand is elastic.
  - B) small proportion of total costs and product demand is elastic.
  - C) large proportion of total costs and product demand is inelastic.
  - D) small proportion of total costs and product demand is inelastic.

Ans: A Level: Difficult Main Topic: 11.3 Elasticity of factor demand Page: 277  
Subtopic: Ratio of factor cost to total cost Type: Application

## Chapter 11 The Demand for Factors of Production

173. What happens when technological advance makes available a new highly productive capital good for which  $MP/P$  is greater than for the labour for which it is a substitute factor?
- A) Labour will replace the new capital because labour is now cheaper.
  - B) The new capital will replace labour because it reduces the firms' costs.
  - C) More of both the new capital and labour will be used because firms are more productive.
  - D) Less of both the new capital and labour will be used because the firms do not know how to use the new technology.

Ans: B Level: Moderate Main Topic: 11.4 Optimal combination of factors  
Page: 278 Subtopic: The least-cost rule Type: Application

174. The introduction of automatic elevator equipment allowed firms to handle the movement of people in a multi-story building at less cost, thus decreasing the demand for elevator operators. The best explanation for this change is that the:
- A) marginal product of elevator operators was equal to its price.
  - B) marginal product of automatic elevator equipment was equal to its price.
  - C) marginal product of automatic elevator equipment divided by its price was greater than that for elevator operators.
  - D) marginal product of elevator operators divided by its price was greater than that for automatic elevator equipment.

Ans: C Level: Difficult Main Topic: 11.4 Optimal combination of factors  
Page: 278 Subtopic: The least-cost rule Type: Application

175. Assume that an appliance manufacturer is employing variable factors X and Y in such amounts that the MRPs of the last units of X and Y employed are \$100 and \$60 respectively. Factor X can be hired at \$50 per unit and factor Y at \$20 per unit. The firm:
- A) should hire more of both X and Y.
  - B) should hire more of Y and less of X.
  - C) is producing with the least-costly combination of X and Y, but could increase its profits by employing more of X and less of Y.
  - D) is using the least-cost combination of X and Y, but could increase its profits by employing less of both X and Y.

Ans: A Level: Difficult Main Topic: 11.4 Optimal combination of factors  
Page: 278 Subtopic: The least-cost rule Type: Application

## Chapter 11 The Demand for Factors of Production

176. Suppose a firm is hiring factors L and M under perfectly competitive conditions to produce product Y which sells for a price of \$2 in a perfectly competitive market. The prices of L and M are \$10 and \$4 respectively. In equilibrium the MPs of L and M, respectively, are:

A) 1 and 1.  
B) 2 and 5.  
C) 10 and 4.  
D) 5 and 2.

Ans: D Level: Difficult Main Topic: 11.4 Optimal combination of factors  
Page: 278 Subtopic: The least-cost rule Type: Calculation

177. If a firm is employing quantities of factors J and K so that  $MRP_J/P_J = MRP_K/P_K = 1$ , then:

A)  $MP_J/P_J$  may either exceed or be less than  $MP_K/P_K$ .  
B)  $MP_J/P_J$  will be less than  $MP_K/P_K$ .  
C)  $MP_J/P_J$  will exceed  $MP_K/P_K$ .  
D)  $MP_J/P_J = MP_K/P_K$ .

Ans: D Level: Moderate Main Topic: 11.4 Optimal combination of factors  
Page: 278 Subtopic: The least-cost rule Type: Formula

178. If a firm is hiring variable factors D and F in perfectly competitive input markets, it will minimize the cost of producing any level of output by employing D and F in such amounts that:

A) the price of each input equals its MP.  
B)  $MP_D = MP_F$ .  
C)  $MP_D/P_D = MP_F/P_F$ .  
D)  $MP_D/P_F = MP_F/P_D$ .

Ans: C Level: Moderate Main Topic: 11.4 Optimal combination of factors  
Page: 278 Subtopic: The least-cost rule Type: Formula

179. A business is employing inputs such that the marginal product of labour is 40 and the marginal product of capital is 90. The price of labour is \$20 and the price of capital is \$30. If the business wants to minimize costs while keeping output constant, then it should:

A) use more labour and less capital.  
B) use less labour and less capital.  
C) use less labour and more capital.  
D) make no change in factor use.

Ans: C Level: Moderate Main Topic: 11.4 Optimal combination of factors  
Page: 278 Subtopic: The least-cost rule Type: Calculation

## Chapter 11 The Demand for Factors of Production

180. A firm combines two factors, A and B, to produce an output Q. Their respective marginal revenue products are \$30 and \$21. A costs \$15 a unit and B \$7 a unit. To reduce the cost of Q:
- A) more B and less A should be used.
  - B) more A and less B should be used.
  - C) more of both factors should be used.
  - D) less of both factors should be used.

Ans: A Level: Difficult Main Topic: 11.4 Optimal combination of factors  
Page: 278 Subtopic: The least-cost rule Type: Calculation

181. The price of capital is \$12 per machine-hour and the price of labour is \$3 per hour. Below are production schedules for a firm showing the possible combinations of capital and labour that will produce 100 units of output. Which combination will this cost-minimizing firm choose?
- A) Labour: 20 Capital: 5  $MP_L: 5$   $MP_K: 20$
  - B) Labour: 10 Capital: 10  $MP_L: 10$   $MP_K: 10$
  - C) Labour: 5 Capital: 20  $MP_L: 20$   $MP_K: 5$
  - D) Labour: 4 Capital: 25  $MP_L: 25$   $MP_K: 4$

Ans: A Level: Difficult Main Topic: 11.4 Optimal combination of factors  
Page: 278 Subtopic: The least-cost rule Type: Calculation

182. A firm is producing 100 pencils per week. The production process requires labour and capital as inputs. Labour costs \$6 per labour hour and capital costs \$12 per machine hour. Currently, the marginal product of labour is 18 pencils and the marginal product of capital is 36 pencils. To minimize the cost of producing this level of output the firm should use:
- A) more capital and less labour.
  - B) more labour and less capital.
  - C) less labour and less capital.
  - D) the current amounts of labour and capital.

Ans: D Level: Moderate Main Topic: 11.4 Optimal combination of factors  
Page: 278 Subtopic: The least-cost rule Type: Calculation

183. Suppose a firm is employing all its inputs so that the MRP per dollar spent on each is the same. This suggests that the:
- A) amount of each factor employed will depend on both its price and its productivity.
  - B) price of each input must be identical.
  - C) firm is using the same quantity of each input.
  - D) total expenditure on each input is identical.

Ans: A Level: Difficult Main Topic: 11.4 Optimal combination of factors  
Page: 278 Subtopic: The least-cost rule Type: Application

## Chapter 11 The Demand for Factors of Production

184. Assume a pencil manufacturer is employing factors C and D in such quantities that the MRPs of the last units hired are \$80 and \$50 respectively. The price of factor C is \$90 and the price of D is \$35. This firm:
- A) should hire less of C and more of D.
  - B) should hire more of both C and D.
  - C) should hire less of both C and D.
  - D) is using the least-cost combination of C and D.

Ans: A Level: Moderate Main Topic: 11.4 Optimal combination of factors  
Page: 278 Subtopic: The least-cost rule Type: Calculation

Use the following to answer questions 185-187:

Suppose a firm hires both labour (L) and capital (C) under perfectly competitive conditions. The price of labour is  $P_L$  and that of capital is  $P_C$ . The marginal product of labour is  $MP_L$  and that of capital is  $MP_C$ . The firm sells its product competitively at a price of  $P_X$ .

185. Refer to the information provided above. Which of the following must pertain if the firm is to minimize the cost of producing any output?
- A)  $MP_C = MP_L = P_X$ .
  - B)  $MP_C = P_C$  and  $MP_L = P_L$ .
  - C)  $MP_C/P_C = MP_L/P_L$ .
  - D)  $MP_C/P_X = MP_L/P_X$ .

Ans: C Level: Moderate Main Topic: 11.4 Optimal combination of factors  
Page: 278 Subtopic: The least-cost rule Type: Formula

186. Refer to the information provided above. If  $MP_C/P_C > MP_L/P_L$ , the firm:
- A) may be maximizing profits, but it is not minimizing costs.
  - B) may be minimizing costs, but it is not maximizing profits.
  - C) is neither minimizing costs nor maximizing profits.
  - D) is minimizing costs and maximizing profits.

Ans: C Level: Moderate Main Topic: 11.4 Optimal combination of factors  
Page: 278 Subtopic: The least-cost rule Type: Application

187. Refer to the information provided above. In competitive labour markets, the marginal cost of an additional unit of labour:
- A) is equal to  $P_L \times MP_L$ .
  - B) is equal to  $MP_L/P_L$ .
  - C) is equal to  $P_L$ .
  - D) cannot be determined from the information given.

Ans: C Level: Moderate Main Topic: 11.4 Optimal combination of factors  
Page: 278 Subtopic: The least-cost rule Type: Formula

## Chapter 11 The Demand for Factors of Production

188. A firm operating in perfectly competitive product and factor markets uses three factors, A, B, and C, whose prices and productivities at current output levels are given below.

	A	B	C
Price	\$ 10	\$10	\$2
MRP	20	6	4

To achieve an optimal factor mix for its current output the firm should employ more:

- A) A and B and less C.
- B) A and B and C.
- C) A and C and less B.
- D) B and less A and C.

Ans: C Level: Moderate Main Topic: 11.4 Optimal combination of factors  
Page: 279 Subtopic: The profit-maximizing rule Type: Application

189. Assuming a competitive factor market, a firm is hiring several factors in the profit-maximizing amounts when the:

- A) firm's total outlay on factors is minimized.
- B) marginal revenue product of each factor is equal to its price.
- C) price of each factor employed is the same.
- D) marginal revenue product of the last unit of each factor hired is the same.

Ans: B Level: Moderate Main Topic: 11.4 Optimal combination of factors  
Page: 279 Subtopic: The profit-maximizing rule Type: Application

190. A firm is hiring factors X, Y, and Z in the profit-maximizing amounts when:

- A)  $MRP_x/P_x$  equals  $MRP_y/P_y$  equals  $MRP_z/P_z$  equals 1.
- B) the sum of the MRPs of the three factors is at a minimum.
- C) the marginal revenue productivity of all three factors is the same.
- D) the marginal revenue product of the last dollar spent on each of the three factors is the same.

Ans: A Level: Moderate Main Topic: 11.4 Optimal combination of factors  
Page: 279 Subtopic: The profit-maximizing rule Type: Application

191. The equation  $MP_L/P_L = MP_C/P_C$ :

- A) designates the  $MR = MC$  level of output.
- B) is based on the assumption of imperfect competition in the hiring of labour and capital.
- C) is a sufficient condition for the maximization of profits.
- D) is a necessary, but not sufficient, condition for the maximization of profits.

Ans: D Level: Moderate Main Topic: 11.4 Optimal combination of factors  
Page: 279 Subtopic: The profit-maximizing rule Type: Application



## Chapter 11 The Demand for Factors of Production

192. Which of the following statements is correct?

- A) If the profit-maximizing rule is fulfilled, it necessarily follows that the cost-minimization rule is being fulfilled.
- B) The profit-maximizing and the cost-minimizing rules are such that the fulfilling of one has no bearing upon the fulfilling of the other.
- C) If the profit-maximizing rule is fulfilled, the cost-minimization rule may or may not be fulfilled.
- D) If the cost-minimization rule is fulfilled, it necessarily follows that the profit-maximizing rule is being fulfilled.

Ans: A Level: Difficult Main Topic: 11.4 Optimal combination of factors

Page: 279 Subtopic: The profit-maximizing rule Type: Application

193. If  $MP_a/P_a = MP_b/P_b$  and  $MRP_a/P_a = MRP_b/P_b > 1$ , this firm is:

- A) producing its output with the least costly combination of factors, but is not producing the profit-maximizing output.
- B) maximizing profits, but failing to minimize costs.
- C) neither maximizing profits nor minimizing costs.
- D) combining factors a and b so as to minimize costs and maximize profits.

Ans: A Level: Difficult Main Topic: 11.4 Optimal combination of factors

Page: 279 Subtopic: The profit-maximizing rule Type: Application

194. A firm which is motivated by self interest should:

- A) employ the combination of factors which will produce the profit-maximizing output at the minimum cost.
- B) hire each input so the productivity of each is equal at the margin.
- C) always use large amounts of the most productive inputs and small amounts of the least productive inputs in producing its output.
- D) always use large amounts of cheap inputs and small amounts of expensive inputs in producing its output.

Ans: A Level: Difficult Main Topic: 11.4 Optimal combination of factors

Page: 279 Subtopic: The profit-maximizing rule Type: Application

195. Assuming perfect competition, which of the following are equivalents?

- A)  $MRP_L/P_L = MRP_C/P_C$  and  $P_x = 1/MC$ .
- B)  $MRP_L/P_L = MRP_C/P_C$  and  $P_x = AVC$ .
- C)  $P_x = MC$  and  $MRP_L/P_L = MRP_C/P_C = 1$ .
- D)  $P_x = MC$  and  $MP_L/P_L = MP_C/P_C$ .

Ans: C Level: Difficult Main Topic: 11.4 Optimal combination of factors

Page: 279 Subtopic: The profit-maximizing rule Type: Formula



## Chapter 11 The Demand for Factors of Production

196. The profit-maximizing and the least-cost combination of inputs are:
- A) the result of unrelated decisions.
  - B) always identical.
  - C) such that the minimization of costs always results in profit maximization.
  - D) such that the maximization of profits always entails the least-cost combination of inputs.

Ans: D Level: Moderate Main Topic: 11.4 Optimal combination of factors  
Page: 279 Subtopic: The profit-maximizing rule Type: Application

Use the following to answer questions 197-200:

The following marginal product data for factors a and b. The output of these independent factors sells in a perfectly competitive market at \$1 per unit.

Input a		Input b	
a	MP <sub>a</sub>	b	MP <sub>b</sub>
1	25	1	40
2	20	2	36
3	15	3	32
4	10	4	24
5	5	5	20
6	2	6	16
7	1	7	8

197. Refer to the data above. Assuming the prices of factors a and b are \$5 and \$8 respectively, what is the least costly combination of factors for the firm to employ in producing 192 units of output?
- A) 2 of a and 6 of b
  - B) 6 of a and 2 of b
  - C) 4 of a and 3 of b
  - D) 3 of a and 4 of b

Ans: D Level: Difficult Main Topic: 11.4 Optimal combination of factors  
Page: 279-280 Subtopic: Numerical illustration Type: Calculation

## Chapter 11 The Demand for Factors of Production

198. Refer to the data above. Assuming the prices of factors a and b are \$5 and \$8 respectively, what is the profit-maximizing combination of factors?

- A) 7 of a and 7 of b
- B) 6 of a and 4 of b
- C) 5 of a and 7 of b
- D) 4 of a and 4 of b

Ans: C Level: Difficult Main Topic: 11.4 Optimal combination of factors  
Page: 279-280 Subtopic: Numerical illustration Type: Calculation

199. Refer to the data above. If the firm hires the profit-maximizing combination of factors, what will be the firm's economic profit?

- A) \$170
- B) \$76
- C) \$145
- D) \$138

Ans: A Level: Difficult Main Topic: 11.4 Optimal combination of factors  
Page: 279-280 Subtopic: Numerical illustration Type: Calculation

200. Refer to the data above. Assume now that the prices of a and b rise to \$15 and \$20 respectively to maximize profits what combination of a and b should the employer hire?

- A) 3 of a and 5 of b
- B) 5 of a and 7 of b
- C) 7 of a and 7 of b
- D) 6 of a and 2 of b

Ans: A Level: Difficult Main Topic: 11.4 Optimal combination of factors  
Page: 279-280 Subtopic: Numerical illustration Type: Calculation

Use the following to answer questions 201-206:

<u>Quantity of labour</u>	<u>MP of labour</u>	<u>MRP of labour</u>	<u>Quantity of capital</u>	<u>MP of capital</u>	<u>MRP of capital</u>
1	15	\$45	1	8	\$24
2	12	36	2	6	18
3	9	27	3	5	15
4	6	18	4	4	12
5	3	9	5	3	9
6	1	3	6	2	6

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201. Refer to the data above. This firm is selling its product in:
- A) an imperfectly competitive market at prices which decline as sales increase.
  - B) a perfectly competitive market at \$3 per unit.
  - C) a perfectly competitive market at \$2 per unit.
  - D) an imperfectly competitive market at \$3 per unit.

Ans: B Level: Moderate Main Topic: 11.4 Optimal combination of factors  
Page: 279-280 Subtopic: Numerical illustration Type: Calculation

202. Refer to the data above. If the prices of labour and capital are \$9 and \$15 respectively, the firm will hire:
- A) 5 units of labour and 3 of capital.
  - B) 5 units of labour and 2 of capital.
  - C) 4 units of labour and 4 of capital.
  - D) none of the above.

Ans: A Level: Difficult Main Topic: 11.4 Optimal combination of factors  
Page: 279-280 Subtopic: Numerical illustration Type: Calculation

203. Refer to the data above. The firm's total output will be:
- A) 38 units.
  - B) 60 units.
  - C) 64 units.
  - D) 27 units.

Ans: C Level: Difficult Main Topic: 11.4 Optimal combination of factors  
Page: 279-280 Subtopic: Numerical illustration Type: Calculation

204. Refer to the data above. The firm's total revenue will be:
- A) \$114.
  - B) \$180.
  - C) \$129.
  - D) \$192.

Ans: D Level: Moderate Main Topic: 11.4 Optimal combination of factors  
Page: 279-280 Subtopic: Numerical illustration Type: Calculation

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205. Refer to the data above. If labour and capital are the only inputs, the firm's total costs will be:

- A) \$106.
- B) \$126.
- C) \$47.
- D) \$90.

Ans: D Level: Moderate Main Topic: 11.4 Optimal combination of factors  
Page: 279-280 Subtopic: Numerical illustration Type: Calculation

206. Refer to the data above. Assuming labour and capital are the only inputs, the firm's economic profits will be:

- A) \$102.
- B) \$82.
- C) \$67.
- D) \$28.

Ans: A Level: Difficult Main Topic: 11.4 Optimal combination of factors  
Page: 279-280 Subtopic: Numerical illustration Type: Calculation

207. Assume that a computer disk manufacturer is employing factors so that the MRP of the last unit hired for factor A is \$120 and the MRP of the last unit hired for factor B is \$75. The price of factor A is \$40 and the price of factor B is \$25. To maximize profit the firm should:

- A) hire more of factor A and less of factor B
- B) hire less of factor A and more of factor B
- C) hire less of both factor A and factor B
- D) hire more of both factor A and factor B

Ans: D Level: Difficult Main Topic: 11.4 Optimal combination of factors  
Page: 279-280 Subtopic: Numerical illustration Type: Calculation

208. Suppose that the production of wheat requires two inputs, labour and fertilizer. The price of labour is \$4.50 and the price of fertilizer is \$3.00. A farmer is currently employing the inputs such that the marginal product of labour is 11 and the marginal product of fertilizer is 8. If the farmer is a cost-minimizer, he should:

- A) use more labour and less fertilizer.
- B) use more fertilizer and less labour.
- C) use more labour and more fertilizer.
- D) continue using the same amounts of each input.

Ans: B Level: Moderate Main Topic: 11.4 Optimal combination of factors  
Page: 279-280 Subtopic: Numerical illustration Type: Calculation

## Chapter 11 The Demand for Factors of Production

209. Assume that a perfectly competitive firm uses two factors-labour (L) and capital (C)-to produce a product. In which situation would the firm be maximizing profit?

	MRPL	MRPC	PL	PC
A)	20	40	60	80
B)	20	40	20	40
C)	30	30	20	20
D)	60	80	20	10

- A) Choice A  
B) Choice B  
C) Choice C  
D) Choice D

Ans: B Level: Moderate Main Topic: 11.4 Optimal combination of factors  
Page: 279-280 Subtopic: Numerical illustration Type: Calculation

210. Assume that a perfectly competitive firm uses two factors, labour (L) and capital (C), to produce a product. In which situation would the firm be maximizing profit?

	MRPL	MRPC	PL	PC
A)	\$100	\$200	\$300	\$400
B)	\$100	\$200	\$200	\$100
C)	\$150	\$200	\$150	\$200
D)	\$300	\$400	\$300	\$200

- A) Choice A  
B) Choice B  
C) Choice C  
D) Choice D

Ans: C Level: Difficult Main Topic: 11.4 Optimal combination of factors  
Page: 279-280 Subtopic: Numerical illustration Type: Calculation

211. A firm is employing inputs such that the marginal product of labour is 25 and the marginal product of capital is 40. The price of labour is \$5 and the price of capital is \$8. If the firm wants to minimize costs, then it should:

- A) use more labour and less capital.  
B) use less labour and less capital.  
C) use less labour and more capital.  
D) make no change in factor use.

Ans: D Level: Moderate Main Topic: 11.4 Optimal combination of factors  
Page: 279-280 Subtopic: Numerical illustration Type: Calculation

## Chapter 11 The Demand for Factors of Production

212. In a competitive industry, suppose the marginal revenue product (MRP) of the last doughnut baker hired is \$35, the MRP of the last bagel baker hired is \$15, and a bakery must pay doughnut bakers \$40 a day and bagel bakers \$10 per day. To maximize profits the bakery should hire:
- A) more doughnut bakers and fewer bagel bakers.
  - B) fewer doughnut bakers and more bagel bakers.
  - C) less of both doughnut bakers and bagel bakers.
  - D) more of both doughnut bakers and bagel bakers.

Ans: B Level: Moderate Main Topic: 11.4 Optimal combination of factors  
Page: 279-280 Subtopic: Numerical illustration Type: Calculation

213. A perfectly competitive firm in the factor and product markets sells its output for \$1 and pays factors  $P_L = \$4$  and  $P_K = \$3$ . What is the profit-maximizing combination of L and K for the firm?

$Q_L$	$MP_L$	$Q_K$	$MP_K$
1	28	1	18
2	24	2	15
3	20	3	12
4	16	4	9
5	9	5	6
6	4	6	3
7	2	7	2
8	1	8	1.5
9	5	9	1

- A) 8 of L and 8 of K
- B) 4 of L and 3 of K
- C) 5 of L and 2 of K
- D) 6 of L and 6 of K

Ans: D Level: Difficult Main Topic: 11.4 Optimal combination of factors  
Page: 279-280 Subtopic: Numerical illustration Type: Calculation

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214. Assume a firm purchases factors a and b under perfectly competitive conditions and combines these factors to produce X. Product X is sold in a perfectly competitive market. The MP of a and b are 6 and 3 respectively and the prices of a and b are \$12 and \$6 respectively. If equilibrium exists, the price of X will be:
- A) \$1.
  - B) \$.50.
  - C) \$2.
  - D) \$5.

Ans: C Level: Difficult Main Topic: 11.4 Optimal combination of factors  
Page: 279-280 Subtopic: Numerical illustration Type: Calculation

215. In the marginal productivity theory of income distribution, when all markets are perfectly competitive, the payment for each unit of a factor is equal to its:
- A) total product.
  - B) marginal product.
  - C) marginal revenue product.
  - D) total revenue product.

Ans: C Level: Moderate Main Topic: 11.4 Optimal combination of factors  
Page: 281 Subtopic: Marginal productivity theory of income distribution  
Type: Application

216. The marginal productivity theory of income distribution suggests:
- A) that government should subsidize the most productive workers through a system of transfer payments.
  - B) that each individual should receive income based on his contribution to total output.
  - C) the notion of "from each according to his ability, to each according to his wants."
  - D) that factor owners should receive income based upon their needs.

Ans: B Level: Moderate Main Topic: 11.4 Optimal combination of factors  
Page: 281 Subtopic: Marginal productivity theory of income distribution  
Type: Definition

## Chapter 11 The Demand for Factors of Production

217. Those who advocate the marginal productivity theory of income distribution argue that:
- A) government policy should be used to redistribute income based on need.
  - B) family income should be based on a family's demand for products.
  - C) factor markets will set incomes based on workers' contributions to the output of scarce goods and services.
  - D) monopoly and monopsony power do not affect factor payments of the overall distribution of income.

Ans: C Level: Moderate Main Topic: 11.4 Optimal combination of factors  
Page: 281 Subtopic: Marginal productivity theory of income distribution  
Type: Application

218. Critics of the marginal productivity theory of income distribution claim that the theory is flawed due to:
- A) the law of diminishing returns.
  - B) the existence of imperfect competition--i.e., of monopoly and monopsony--in output and factor markets.
  - C) the problem of comparing different kinds of factors, such as capital and labour.
  - D) government policies which redistribute income.

Ans: B Level: Moderate Main Topic: 11.4 Optimal combination of factors  
Page: 281 Subtopic: Marginal productivity theory of income distribution  
Type: Application

219. A major criticism of the marginal productivity theory of income distribution is that:
- A) the demand for labour factors is price inelastic.
  - B) achieving equality in incomes will take time.
  - C) imperfectly competitive firms are only interested in profit maximization.
  - D) productive factors are unevenly distributed which causes excessive income inequality.

Ans: D Level: Moderate Main Topic: 11.4 Optimal combination of factors  
Page: 281 Subtopic: Marginal productivity theory of income distribution  
Type: Application

220. A major criticism of the marginal productivity theory of income distribution is that:
- A) the demand for labour factors is price inelastic.
  - B) the demand for labour factors is price elastic.
  - C) it produces inequality in income distribution.
  - D) perfectly competitive firms are only interested in profit maximization.

Ans: C Level: Moderate Main Topic: 11.4 Optimal combination of factors  
Page: 281 Subtopic: Marginal productivity theory of income distribution  
Type: Application



## Chapter 11 The Demand for Factors of Production

221. The marginal productivity theory of income distribution has been criticized because:
- A) the resulting distribution of income is likely to be too equal to maintain production incentives.
  - B) income from inherited property is inconsistent with the theory.
  - C) perfectly competitive conditions characterize most factor markets.
  - D) it fails to recognize that factor demand is derived from product demand.

Ans: B Level: Moderate Main Topic: 11.4 Optimal combination of factors  
Page: 281 Subtopic: Marginal productivity theory of income distribution  
Type: Application

222. "Income receivers should be paid in accordance with the value of output each produces." This statement is consistent with the:
- A) monopoly theory of income distribution.
  - B) marginal productivity theory of income distribution.
  - C) least-cost, but not profit-maximizing, combination of inputs.
  - D) concept of compensating wage differences.

Ans: B Level: Moderate Main Topic: 11.4 Optimal combination of factors  
Page: 281 Subtopic: Marginal productivity theory of income distribution  
Type: Application

223. The fact that monopoly and monopsony exist in factor markets means that:
- A) the marginal productivity theory of income distribution is valid.
  - B) factor prices do not accurately measure contributions to output.
  - C) the resulting income distribution is ethically correct.
  - D) income shares do not exhaust the total output.

Ans: B Level: Moderate Main Topic: 11.4 Optimal combination of factors  
Page: 281 Subtopic: Marginal productivity theory of income distribution  
Type: Application

224. "The Case of ABMs" best illustrates the:
- A) law of diminishing marginal utility.
  - B) the substitutability of factors.
  - C) idea of derived demand.
  - D) principle of unintended side-effects.

Ans: B Level: Easy Main Topic: Last word Page: 282 Type: Application

## Chapter 11 The Demand for Factors of Production

225. ABMs and human bank tellers:

- A) are substitute factors.
- B) are so-called "public factors."
- C) have both declined in number because of bank mergers.
- D) are complementary factors.

Ans: A Level: Easy Main Topic: Last word Page: 282 Type: Application

226. The rapid spread of ABMs has:

- A) resulted from changes in banking laws.
- B) increased the demand for bank tellers.
- C) reduced the demand for bank tellers.
- D) increased the hourly wage paid to bank tellers.

Ans: C Level: Easy Main Topic: Last word Page: 282 Type: Application

227. The introduction of ABMs machines has:

- A) increased the demand for a substitute factor-human tellers.
- B) increased the demand for a complementary factor-human tellers.
- C) decreased the demand for a substitute factor-human tellers.
- D) decreased the demand for a complementary factor-human tellers.

Ans: C Level: Easy Main Topic: Last word Page: 282 Type: Application

228. What happened in the banking industry with the introduction of ABMs which had a higher MP/P than for the substitute factor of human tellers?

- A) Human tellers replaced many ABMs because people did not want to use ABMs
- B) ABMs replaced many human tellers because it reduced banks' costs.
- C) More of both ABMs and human tellers were used because banks were more productive.
- D) Less of both ABMs and human tellers were used because banks did not know how to use the new technology

Ans: B Level: Moderate Main Topic: Last word Page: 282

Type: Application

229. The demand for a factor is a derived demand based on the demand for the product it helps to produce.

Ans: True Level: Easy Main Topic: 11.1 Factor pricing and demand Page: 268

Type: Application

## Chapter 11 The Demand for Factors of Production

230. The prices of factors are an important factor in the determination of money income.

Ans: True Level: Easy Main Topic: 11.1 Factor pricing and demand Page: 269  
Type: Application

231. The competitive firm's marginal revenue product of labour will fall as output expands because marginal product diminishes.

Ans: True Level: Moderate Main Topic: 11.1 Factor pricing and demand  
Page: 269 Type: Application

232. The marginal revenue product curve of a perfectly competitive seller declines solely because of the law of diminishing returns.

Ans: True Level: Easy Main Topic: 11.1 Factor pricing and demand Page: 269  
Type: Application

233. Producers should hire factors until the total output of each is equal.

Ans: False Level: Easy Main Topic: 11.1 Factor pricing and demand  
Page: 269-270 Type: Application

234. It will be profitable for a firm to hire additional units of any factor up to the point at which its MRP is equal to its MRC.

Ans: True Level: Easy Main Topic: 11.1 Factor pricing and demand  
Page: 269-270 Type: Application

235. A firm's demand schedule for a factor is the firm's marginal product schedule for the factor.

Ans: False Level: Moderate Main Topic: 11.1 Factor pricing and demand  
Page: 270 Type: Application

236. The demand for a factor depends on its productivity and the market value of the product it is producing.

Ans: True Level: Moderate Main Topic: 11.2 Determinants of factor demand  
Page: 273 Type: Application

237. Assume that capital and labour are substitutes in production. The output effect of an increase in the price of capital decreases the demand of labour.

Ans: True Level: Moderate Main Topic: 11.2 Determinants of factor demand  
Page: 274-275 Type: Application

## Chapter 11 The Demand for Factors of Production

238. If the substitution effect outweighs the output effect, an increase in the price of a substitute factor will increase the demand for labour.

Ans: True Level: Moderate Main Topic: 11.2 Determinants of factor demand  
Page: 274-275 Type: Application

239. If two factors are complementary, a decrease in the price of one will reduce the demand for the other.

Ans: False Level: Moderate Main Topic: 11.2 Determinants of factor demand  
Page: 275 Type: Application

240. If two factors are complementary, an increase in the price of one will increase the demand for the other.

Ans: False Level: Moderate Main Topic: 11.2 Determinants of factor demand  
Page: 275 Type: Application

241. The less the elasticity of product demand, the greater the elasticity of factor demand.

Ans: False Level: Moderate Main Topic: 11.3 Elasticity of factor demand  
Page: 276-277 Type: Application

242. The price of a factor is not directly a determinant of the price elasticity of demand for the factor.

Ans: True Level: Difficult Main Topic: 11.3 Elasticity of factor demand  
Page: 277 Type: Application

243. The more elastic the demand for a product the less elastic will be the demand for the factors employed in producing it.

Ans: False Level: Moderate Main Topic: 11.3 Elasticity of factor demand  
Page: 277 Type: Application

244. Other things equal, the less competitive the market in which a firm sells its product, the less elastic will be its factor demand curve.

Ans: True Level: Moderate Main Topic: 11.3 Elasticity of factor demand  
Page: 277 Type: Application

## Chapter 11 The Demand for Factors of Production

245. To achieve profit maximization, a firm must produce the profit-maximizing output with the least amount of economic factors.

Ans: False    Level: Moderate    Main Topic: 11.4 Optimal combination of factors  
Page: 279    Type: Application

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