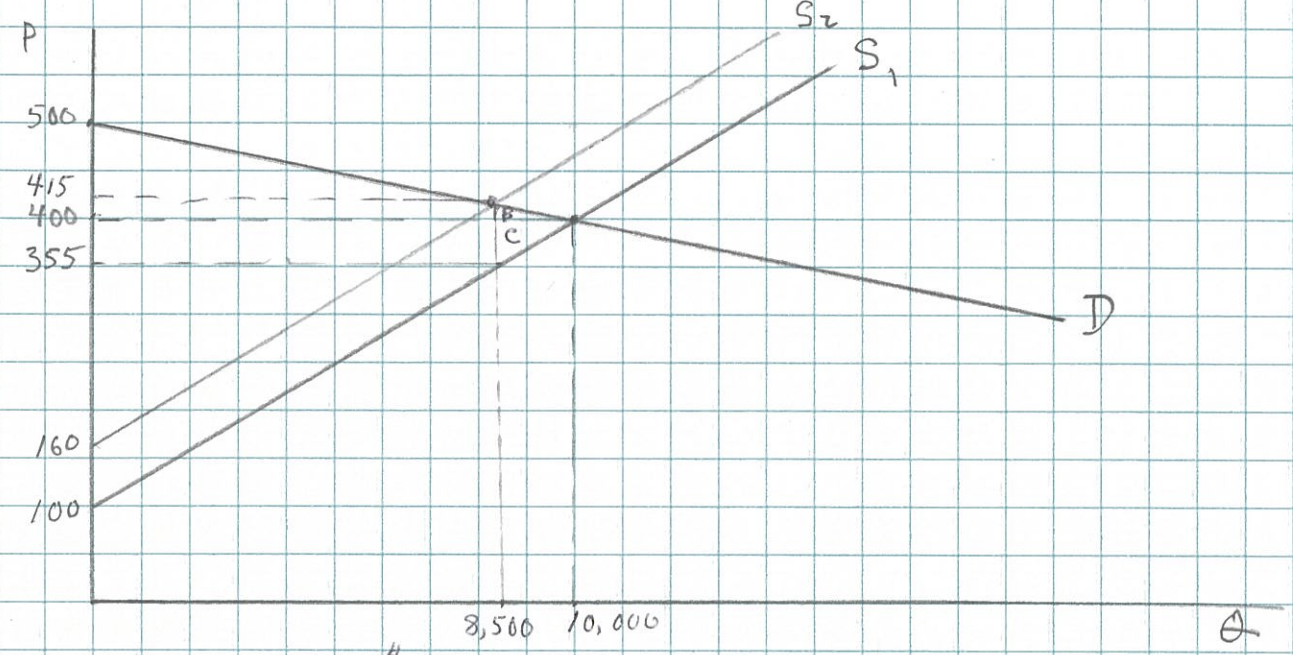
Answers To Assignment 1

1. a) $Q = 10,000$ $P = ₦400$

b) $E_p = -\frac{1}{0.01} \cdot \frac{400}{10,000} = -4$

c)



d) i) $Q = 8,500$, $P = ₦415$

ii) DWL = B + C = ₦45,000 (see figure 9.17)

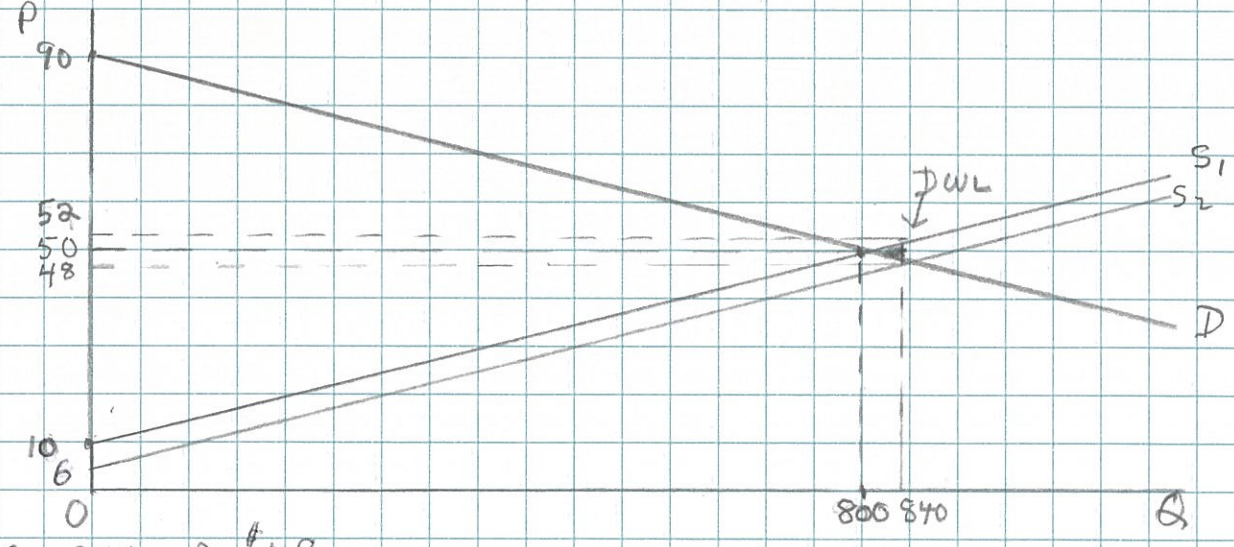
iii) Tax borne by buyers = $E_s / E_s - E_d = 1\frac{1}{3} / 5\frac{1}{3} = \frac{1}{4}$ or ₦15

Tax borne by producers = $-E_D / E_s - E_d = \frac{3}{4}$ or ₦45

2. a) $Q = 800$, $P = ₦50$

b) $E_p = -\frac{1}{0.05} \cdot \frac{50}{800} = -1.25$

c)

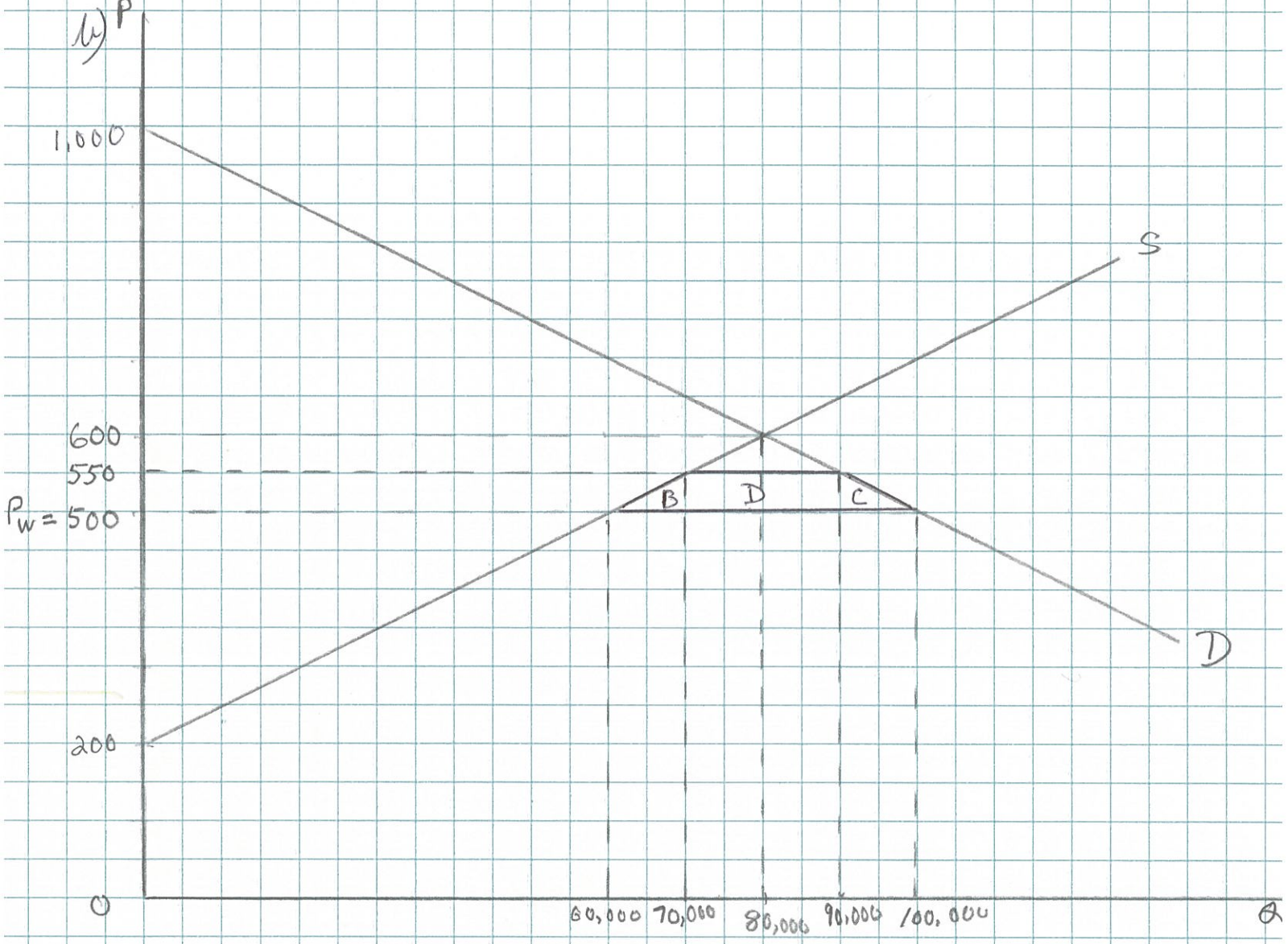


d) i) $Q = 840$, $P = ₦48$

ii) DWL = $\frac{4 \times 40}{2} = 80$

3. a) $Q = 80,000$, $P = \$600$

b)



c) Imports = 40,000

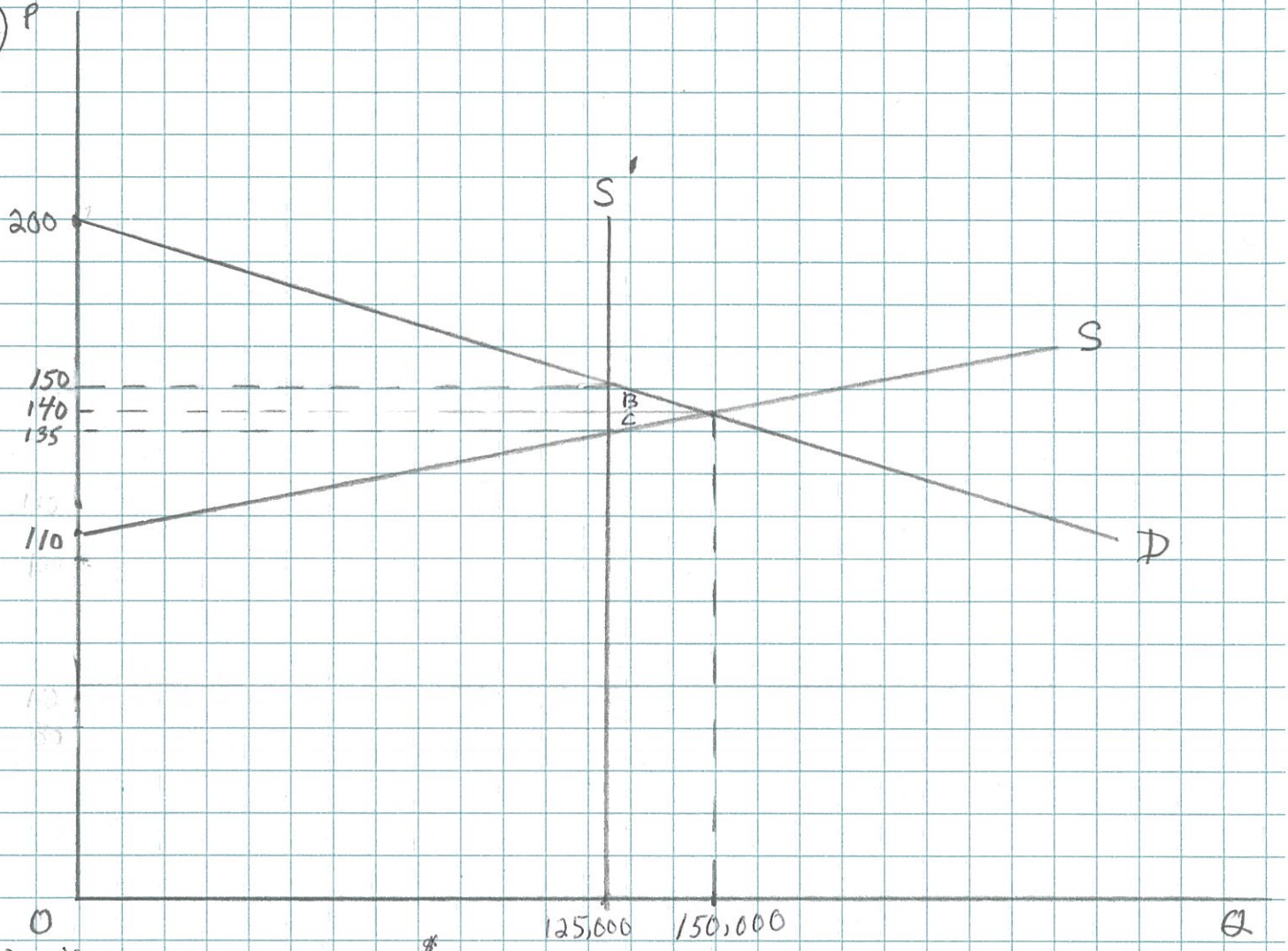
d) i) $Q_D - Q_S = 20,000 = 200,000 - 200P + 40,000 - 200P$
$P = 550$

ii) DWL = B + D + C = 1,500,000 (See Figure 9.15)

iii) Tariff = $\frac{550 - 500}{500} \times 100 = 10\%$, DWL = B + C = 500,000

4 a) $Q = 150,000$, $P = \$140$

b)

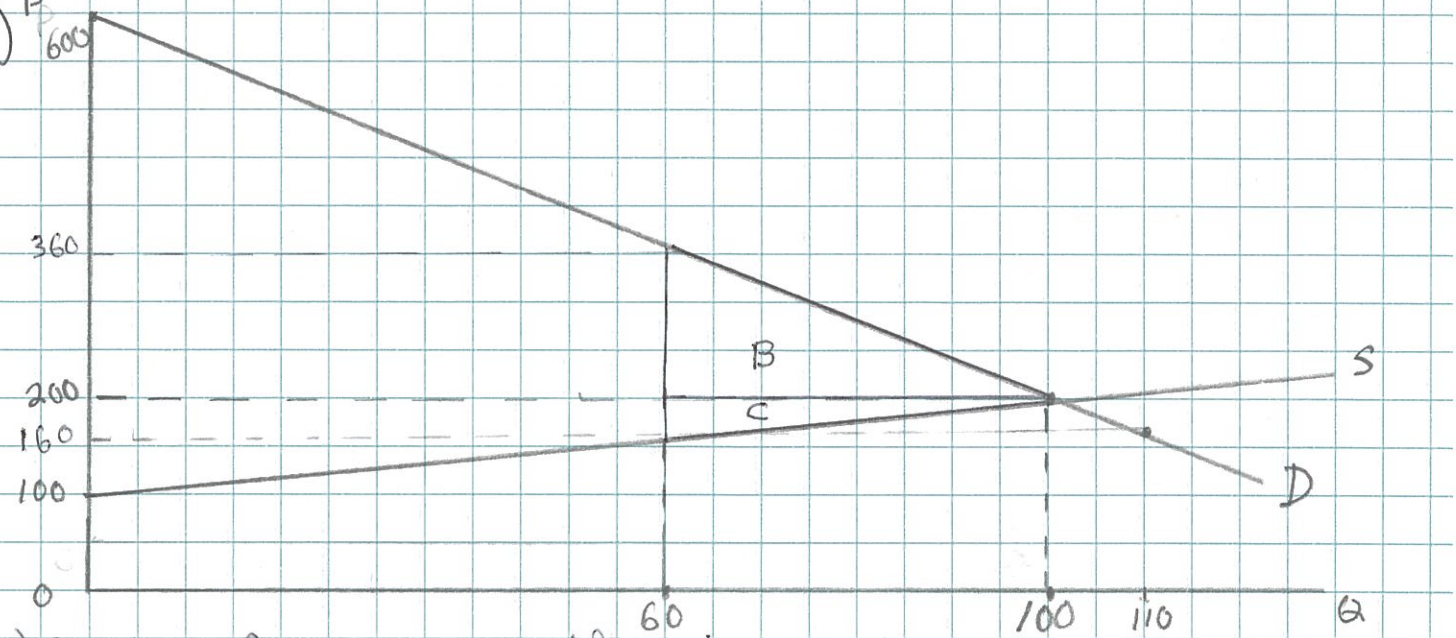


c) i) $Q = 125,000$, $P = \$150$

ii) DWL = B + C = 187,500 (See figure 9.11)

5. a) $Q = 100$, $P = 200$

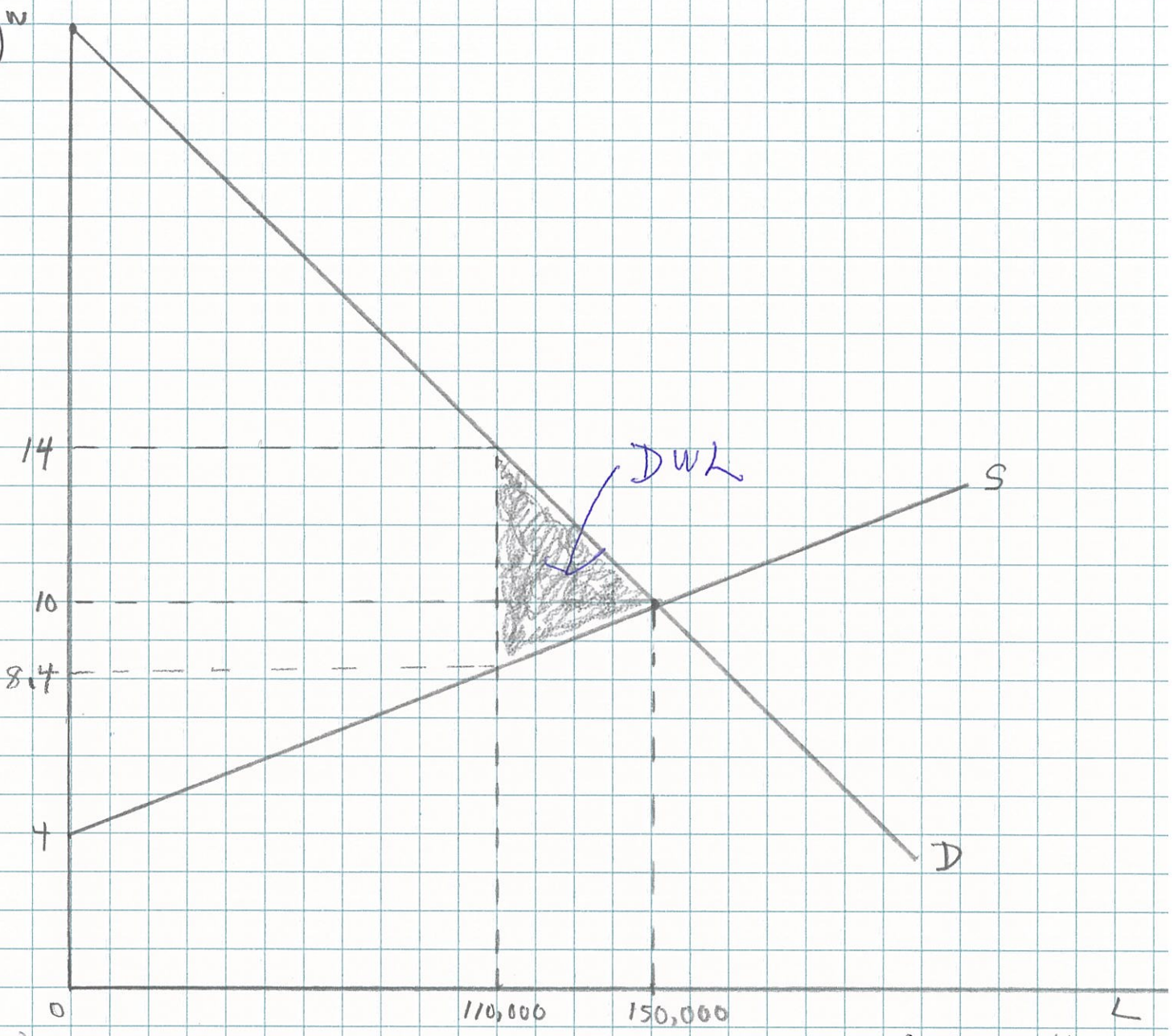
b)



c) DWL = B + C = 4,000 (See figure 9.2)

6 a) $L = 150,000$, $w = 10$

b)



c) $w_1 L_1 = 1,500,000$, $w_{MIN} \cdot L_2 = 1,540,000$ ∴ Labour is better off.

d) $E_L = \frac{\Delta L}{\Delta w} \cdot \frac{w_1 + w_2}{L_1 + L_2} = \frac{-40,000}{4} \cdot \frac{24}{260,000} = -0.92$

e) $DWL = \frac{(14 - 8.4)\,40,000}{2} = 112,000$

7. $P = 500 - 0.01 Q_D$

8. 2.4%

Answers to Assignment 2

1. unemployment rate = 6.6%, participation rate = 65.7%
   employment rate = 61.4%

2. a)

L	Q	MP	VMRP
1	5	5	1,500
2	13	8	2,400
3	18	5	1,500
4	22	4	1,200
5	25	3	900
6	27	2	600
7	28	1	300

   b) L = 3

   c) L = 2

3. a) Constant returns to scale: If you double all inputs, you double output.

   b) $\frac{K}{L} = \frac{1}{4}$

   c) K = 20, L = 80, Q = 348,221

   d) K = 23, L = 92, TC = #23,000

4. a) Increasing returns to scale: If you double all inputs, output will more than double.

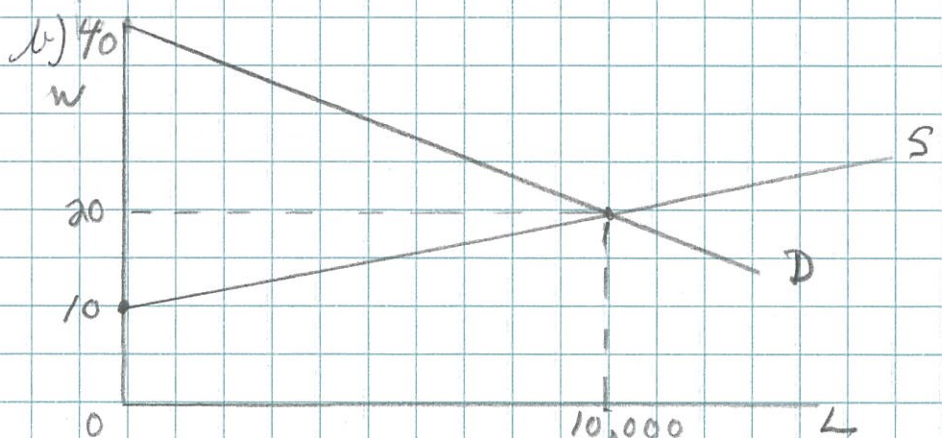
   b) $\frac{K}{L} = \frac{1}{5}$

   c) K = 200, L = 1,000, Q = 27,463,940

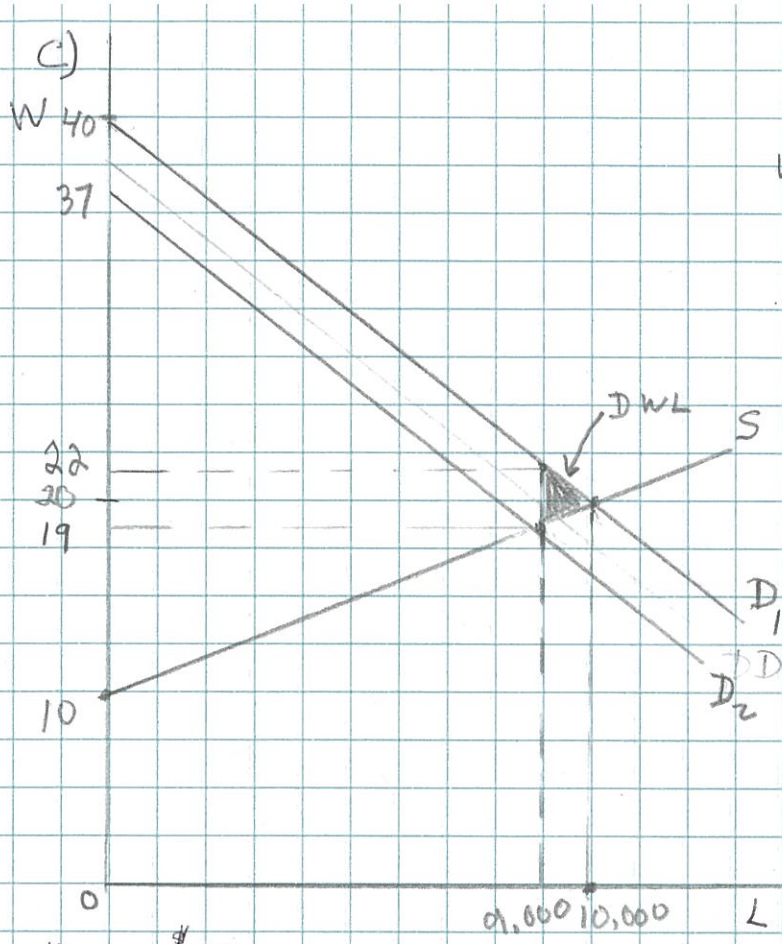
   d) K = 215, L = 1075, TC = #161,250

5. a) L = 10,000, w = 20

   b)



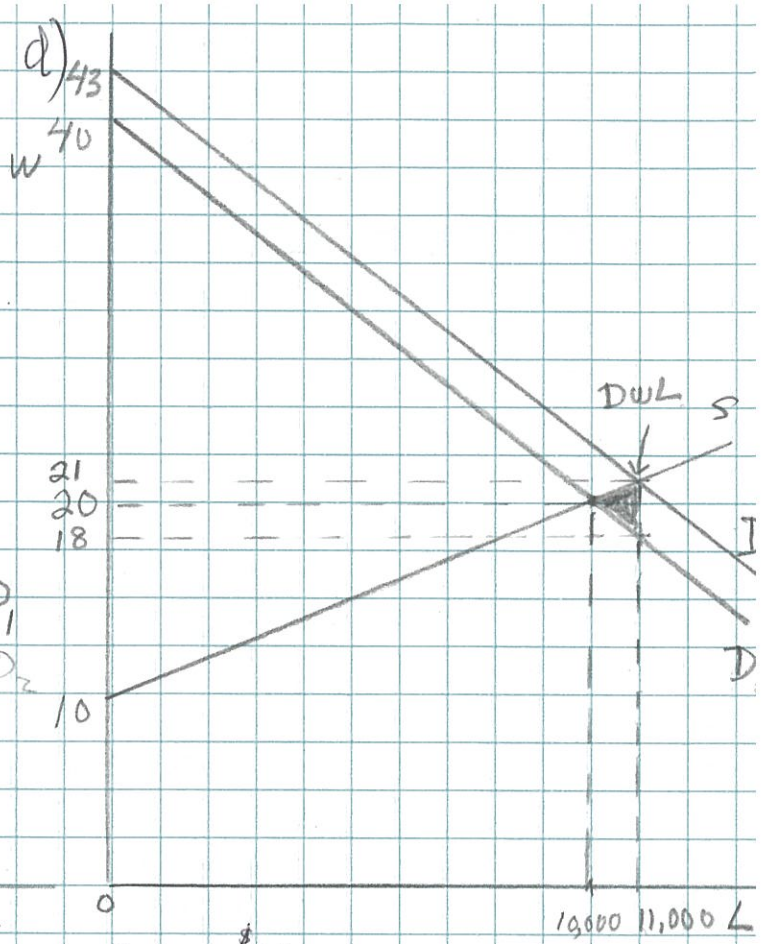
c)



i) $w = \$19$, $L = 9{,}000$

iii) $DWL = \$1{,}500$

d)



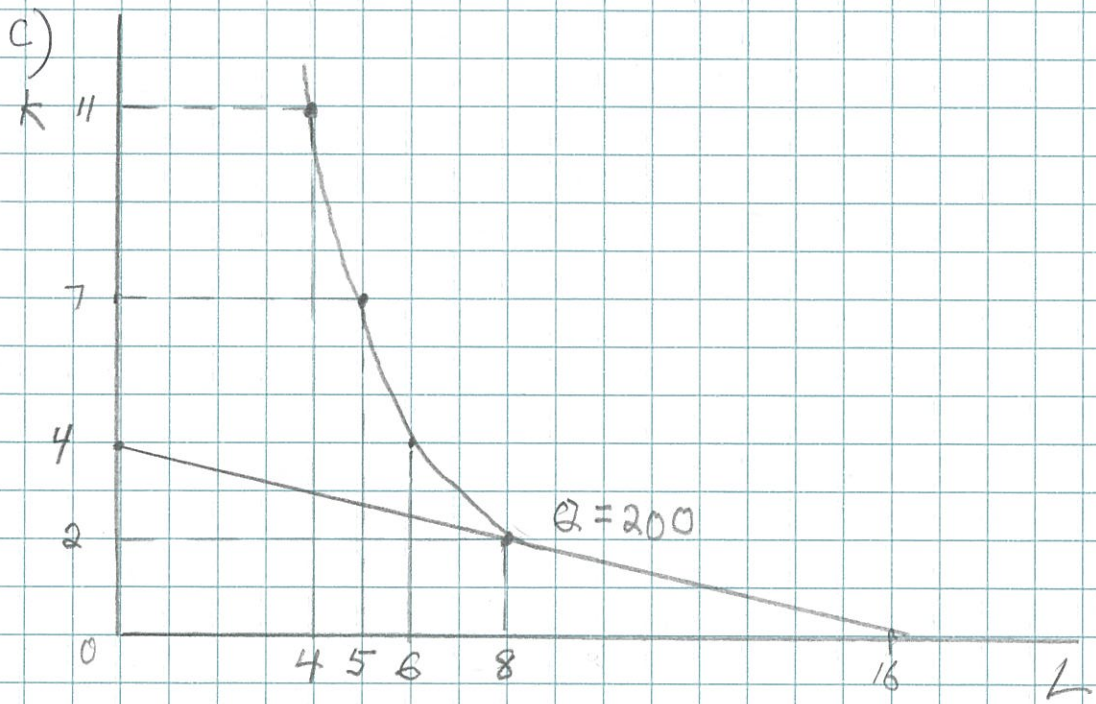
i) $w = \$21$

iii) $DWL = \$1{,}500$

6. a) Method D $TC = \$800$

b) $K = 4 - 0.25L$

c)



7. a) i) decreasing returns to scale: If you double all inputs, output would less than double.

b) $\frac{K}{L} = \frac{1}{2}$

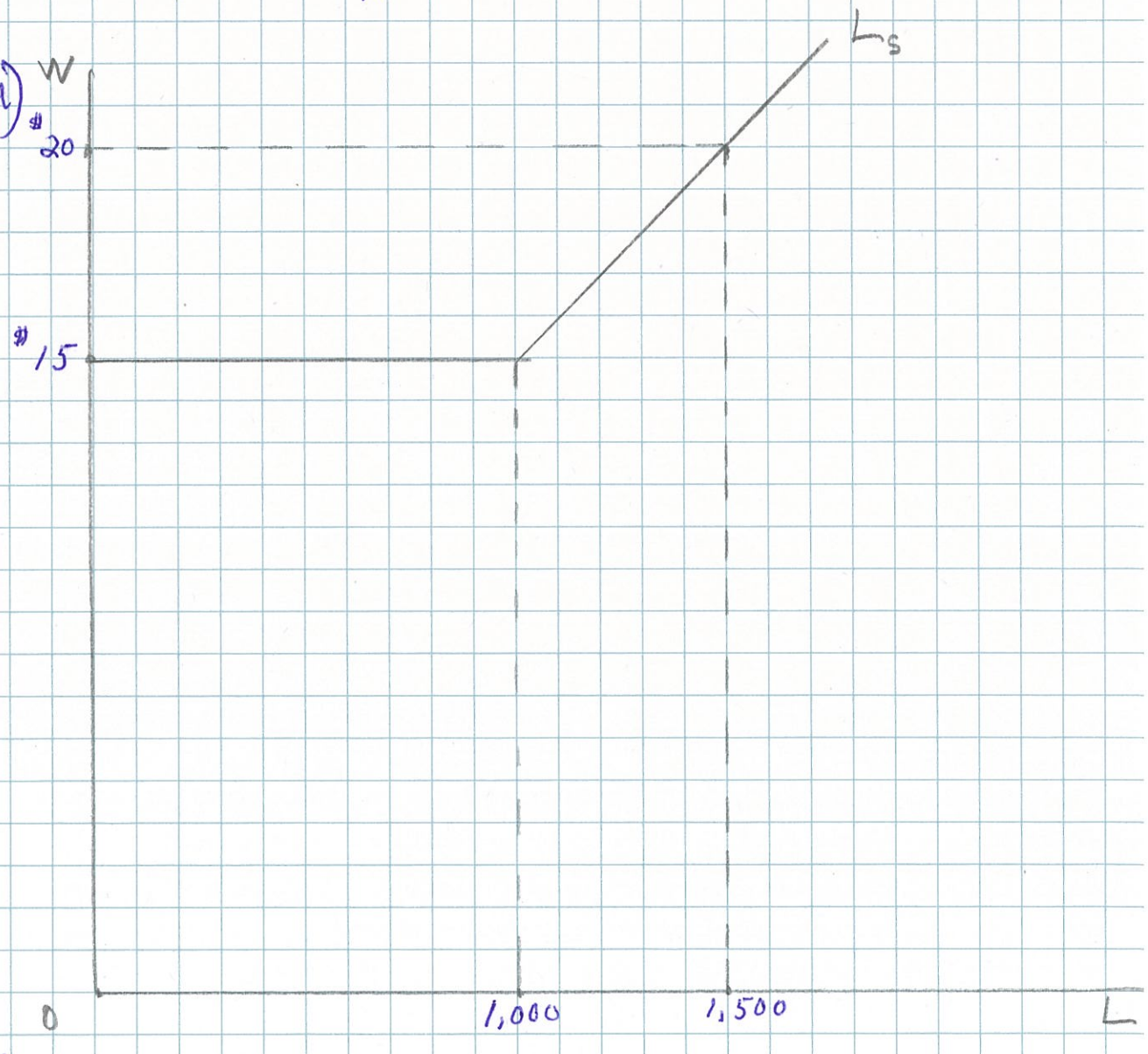
c) $K = 32$, $L = 64$, $TC = 5{,}760$

d) i) $\frac{K}{L} = \frac{2}{3}$

ii) $K = 37.41$, $L = 56.12$
The substitution effect is -7.88

iii) $K = 48.42$, $L = 72.63$
The scale effect is 16.51

8. a)



b) Economic rent $= 5 \times 1{,}000 + \frac{5 \times 500}{2} = 6{,}250$