

Midterm Review

Practice Solutions

1. Depreciation:

- a) **reduces both taxes and net income.**
- b) increases the net fixed assets as shown on the balance sheet.
- c) reduces both the net fixed assets and the costs of a firm.
- d) is a noncash expense which increases the net income.
- e) decreases net fixed assets, net income, and operating cash flows.

Refer to Sections 2.2 and 2.4

2. Your firm has total assets of \$4,900, fixed assets of \$3,200, long-term debt of \$2,900, and short-term debt of \$1,400. What is the amount of net working capital?

- a) -\$100
- b) **\$300**
- c) \$600
- d) \$1,700
- e) \$1,800

Net working capital = $\$4,900 - \$3,200 - \$1,400 = \300

3. Andre's Bakery has sales of \$687,000 with costs of \$492,000. Interest expense is \$26,000 and depreciation is \$42,000. The tax rate is 35 percent. What is the net income?

- a) \$42,750
- b) \$44,450
- c) **\$82,550**
- d) \$86,450
- e) \$124,550

Net income = $(\$687,000 - \$492,000 - \$26,000 - \$42,000) (1 - 0.35) = \$82,550$

4. Crandall Oil has total sales of \$1,349,800 and costs of \$903,500. Depreciation is \$42,700 and the tax rate is 34 percent. The firm does not have any interest expense. What is the operating cash flow?
- a) \$129,152
 - b) \$171,852
 - c) \$179,924
 - d) \$281,417
 - e) \$309,076**

Earnings before interest and taxes = $\$1,349,800 - \$903,500 - \$42,700 = \$403,600$

Tax = $\$403,600 \times 0.34 = \$137,224$

Operating cash flow = $\$403,600 + \$42,700 - \$137,224 = \$309,076$

5. The Blue Bonnet's 2010 balance sheet showed net fixed assets of \$2.2 million, and the 2011 balance sheet showed net fixed assets of \$2.6 million. The company's income statement showed a depreciation expense of \$900,000. What was the amount of the net capital spending for 2011?
- a) -\$500,000
 - b) \$400,000
 - c) \$1,300,000**
 - d) \$1,700,000
 - e) \$1,800,000

Net capital spending = $\$2,600,000 - \$2,200,000 + \$900,000 = \$1,300,000$

6. An increase in current liabilities will have which one of the following effects, all else held constant? Assume all ratios have positive values.
- a) increase in the cash ratio
 - b) increase in the net working capital to total assets ratio
 - c) decrease in the quick ratio**
 - d) decrease in the cash coverage ratio
 - e) increase in the current ratio

Refer to section 3.3

7. Which one of the following statements is correct?
- a) Book values should always be given precedence over market values.
 - b) Financial statements are frequently used as the basis for performance evaluations.**
 - c) Historical information provides no value to someone who is predicting future performance.
 - d) Potential lenders place little value on financial statement information.
 - e) Reviewing financial information over time has very limited value.

Refer to section 3.5

8. Russell's Deli has cash of \$136, accounts receivable of \$95, accounts payable of \$210, and inventory of \$409. What is the value of the quick ratio?
- a) 0.31
 - b) 0.53
 - c) 0.71
 - d) 1.10**
 - e) 1.07

$$\text{Quick ratio} = (\$136 + \$95) / \$210 = 1.10$$

9. Al's Sport Store has sales of \$897,400, costs of goods sold of \$628,300, inventory of \$208,400, and accounts receivable of \$74,100. How many days, on average, does it take the firm to sell its inventory assuming that all sales are on credit?
- a) 74.19 days
 - b) 84.76 days
 - c) 121.07 days**
 - d) 138.46 days
 - e) 151.21 days

$$\text{Inventory turnover} = \$628,300 / \$208,400 = 3.014875$$

$$\text{Days in inventory} = 365 / 3.014875 = 121.07 \text{ days}$$

10. The Purple Martin has annual sales of \$687,400, total debt of \$210,000, total equity of \$365,000, and a profit margin of 4.80 percent. What is the return on assets?

- a) **5.74 percent**
- b) 6.48 percent
- c) 7.02 percent
- d) 7.78 percent
- e) 9.79 percent

Return on assets = $(0.048 \times \$687,400) / (\$210,000 + \$365,000) = 5.74$ percent

11. Reliable Cars has sales of \$807,200, total assets of \$1,105,100 and a profit margin of 9.68 percent. The firm has a total debt ratio of 78 percent. What is the return on equity?

- a) 13.09 percent
- b) 16.67 percent
- c) 17.68 percent
- d) 28.56 percent
- e) **32.14 percent**

Return on equity = $(0.0968 \times \$807,200) / [\$1,105,100 \times (1 - 0.78)] = 32.14$ percent

12. Tracy invested \$1,000 five years ago and earns 4 percent interest on her investment. By leaving her interest earnings in her account, she increases the amount of interest she earns each year. The way she is handling her interest income is referred to as which one of the following?

- a) Simplifying
- b) **Compounding**
- c) Aggregation
- d) Accumulation
- e) Discounting

Refer to section 5.1

13. Gerold invested \$5,600 in an account that pays 5 percent simple interest. How much money will he have at the end of ten years?
- a) \$7,710
 - b) \$8,000
 - c) \$8,400**
 - d) \$8,678
 - e) \$9,099

$$\text{Ending value} = \$5,600 + (\$5,600 \times 0.05 \times 10) = \$8,400$$

14. What is the future value of \$6,200 invested for 23 years at 9.25 percent compounded annually?
- a) \$22,483.60
 - b) \$27,890.87
 - c) \$38,991.07
 - d) \$41,009.13
 - e) \$47,433.47**

$$\text{Future value} = \$6,200 \times (1 + 0.0925)^{23} = \$47,433.47$$

Enter	23	9.25	-6,200		
	N	I/Y	PV	PMT	FV
Solve for					47,433.47

15. You would like to give your daughter \$75,000 towards her college education 17 years from now. How much money must you set aside today for this purpose if you can earn 8 percent on your investments?

- a) \$18,388.19
- b) \$20,270.17**
- c) \$28,417.67
- d) \$29,311.13
- e) \$32,488.37

$$\text{Present value} = \$75,000 \times [1 / (1 + 0.08)^{17}] = \$20,270.17$$

Enter	17	8			75,000
	N	I/Y	PV	PMT	FV
Solve for			-20,270.17		

16. One year ago, you invested \$1,800. Today it is worth \$1,924.62. What rate of interest did you earn?

- a) 6.59 percent
- b) 6.67 percent
- c) 6.88 percent
- d) 6.92 percent**
- e) 7.01 percent

$$\$1,924.62 = \$1,800 \times (1 + r)^1; r = 6.92 \text{ percent}$$

Enter	1		-1,800		1,924.62
	N	I/Y	PV	PMT	FV
Solve for		6.92			

17. You are comparing two annuities which offer quarterly payments of \$2,500 for five years and pay 0.75 percent interest per month. Annuity A will pay you on the first of each month while annuity B will pay you on the last day of each month. Which one of the following statements is correct concerning these two annuities?
- These two annuities have equal present values but unequal future values at the end of year five.
 - These two annuities have equal present values as of today and equal future values at the end of year five.
 - Annuity B is an annuity due.
 - Annuity A has a smaller future value than annuity B.
 - Annuity B has a smaller present value than annuity A.**

Refer to section 6.2

18. You buy an annuity that will pay you \$24,000 a year for 25 years. The payments are paid on the first day of each year. What is the value of this annuity today if the discount rate is 8.5 percent?
- \$241,309
 - \$245,621
 - \$251,409
 - \$258,319
 - \$266,498**

$$A_{\text{due}} \text{ PV} = \$24,000 \times \left\{ \frac{1 - [1/(1+0.085)^{25}]}{0.085} \right\} \times (1 + 0.085) = \$266,498$$

Enter	25	8.5	24,000	
	N	I/Y	PMT	FV
Solve for			-245,620.58	

$$\text{PVA} = \$245,620.58$$

$$\text{PVA due} = \$245,620.58(1.085) = \$266,498$$

19. What is the future value of \$1,200 a year for 40 years at 8 percent interest? Assume annual compounding.

- a) \$301,115
- b) \$306,492
- c) \$310,868**
- d) \$342,908
- e) \$347,267

$$AFV = \$1,200 \times \frac{(1+0.08)^{40}-1}{0.08} = \$310,868$$

Enter	40	8		1,200	
	N	I/Y	PV	PMT	FV
Solve for					-310,868

20. You are considering an annuity which costs \$160,000 today. The annuity pays \$17,500 a year at an annual interest rate of 7.50 percent. What is the length of the annuity time period?

- a) 13 years
- b) 14 years
- c) 15 years
- d) 16 years**
- e) 17 years

$$\$160,000 = \$17,500 \times \left\{ \frac{1 - \left[\frac{1}{(1+0.075)^t} \right]}{0.075} \right\}; t = 16 \text{ years}$$

Enter		7.50	-160,000	17,500	
	N	I/Y	PV	PMT	FV
Solve for	16				

21. The Wine Press is considering a project which has an initial cash requirement of \$187,400. The project will yield cash flows of \$2,832 monthly for 84 months. What is the rate of return on this project?
- a) 6.97 percent
 - b) 7.04 percent**
 - c) 7.28 percent
 - d) 7.41 percent
 - e) 7.56 percent

$$\$187,400 = \$2,832 \times \left\{ \frac{1 - \left[1 / \left(1 + \frac{r}{12} \right)^{84} \right]}{\frac{r}{12}} \right\}$$

This cannot be solved directly, so it's easiest to just use the calculator method to get an answer. You can then use the calculator answer as the rate in the formula just to verify that your answer is correct.

Enter	84		-187,400	2,832	
	N	I/Y	PV	PMT	FV
Solve for		0.5866			

$$q = \text{rate per month} = 0.5866$$

$$r = q(m) = 0.5866(12) = 7.04\%$$

22. You just settled an insurance claim. The settlement calls for increasing payments over a 10-year period. The first payment will be paid one year from now in the amount of \$10,000. The following payments will increase by 4.5 percent annually. What is the value of this settlement to you today if you can earn 8 percent on your investments?

- a) \$76,408.28
- b) \$80,192.76**
- c) \$82,023.05
- d) \$84,141.14
- e) \$85,008.16

$$\text{GAPV} = \$10,000 \times \left[\frac{1 - \left(\frac{1+0.045}{1+0.08} \right)^{10}}{0.08 - 0.045} \right] = \$80,192.76$$

23. Lucas will receive \$7,100, \$8,700, and \$12,500 each year starting at the end of year one. What is the future value of these cash flows at the end of year five if the interest rate is 9 percent?

- a) \$33,418
- b) \$33,907
- c) \$36,140**
- d) \$36,411
- e) \$37,255

$$\text{FV} = [\$7,100 \times (1 + 0.09)^4] + [\$8,700 \times (1 + 0.09)^3] + [\$12,500 \times (1 + 0.09)^2] = \$36,140$$