

## Math 1160 – Section 10.2 Answer Key

2a.  $i = .005$  or  $.5\%$   $n = 240$   $R = \$520$   $P = \$72582$

2b.  $i = .02$  or  $2\%$   $n = 20$   $R = \$700$   $P = \$11446$

4. \$626.02 (outflow of cash to you)

$$N = 14$$

$$I\% = 2$$

$$PV = 0$$

$$PMT = ?$$

$$FV = 10000$$

6. \$7360.09 (outflow of cash to you)

$$N = 10$$

$$I\% = 6$$

$$PV = ?$$

$$PMT = 1000$$

$$FV = 0$$

8a. \$18,498.93 (inflow of cash to you)

$$N = 20$$

$$I\% = 1.5$$

$$PV = 0$$

$$PMT = -800$$

$$FV = ?$$

8b. \$2498.93 (inflow of cash)  $\rightarrow$  \$18,498.93 - \$16,000 (\$800 x 20 payments)

OR  $\Sigma Int (1,20)$  will sum the interest from compounding periods 1 through 20.

10. \$372.80 (outflow of cash each quarter)

$$N = 12$$

$$I\% = 2$$

$$PV = 0$$

$$PMT = ?$$

$$FV = 5000$$

\$526.40 interest  $\rightarrow$  \$5000 - \$4473.60 (\$372.80 x 12 payments)

OR  $\Sigma Int (1,12)$  will sum the interest from compounding periods 1 through 12.

14. \$123.36 (inflow of cash)

N = 12  
I% = .5  
PV = 0  
PMT = -10  
FV = ?

18. \$750 per quarter is better. (Find the FV of receiving \$750 per quarter for 3 years and compare that value to \$10,000. Which is better?)

N = 12  
I% = 2  
PV = 0  
PMT = -750  
FV = Calculated as \$10,059.07

20. \$675.87

Since the \$100 investment is for 5 years and the annuity investment (\$10) is for 4 years, you must do this in 2 parts. Value the \$100 investment from 1/1/2000 to 1/1/2001. That value becomes the PV for the investment from 1/1/2001 to 1/1/2005 when you add the annuity for the last 4 years.

\*Value \$100 for 1 year.\*

\*Value for years 2 through 5.\*

N = 12  
I% = .5  
PV = -100  
PMT = 0  
FV = **106.17**

N = 48  
I% = .5  
PV = -106.17  
PMT = -10  
FV = **675.87**

21. \$17,584.61

This must be done in 2 parts because an investment change took place during the investment period. Value the \$100 increasing annuity for 7 years (Find FV). Add \$1000 to that value, which becomes the PV for the investment for years 8 through 10.

\*Value \$100 annuity for 7 years.\*

\*Value for years 8 through 10.\*

N = 84  
I% = .5  
PV = 0  
PMT = -100  
FV = **10407.39**

N = 36  
I% = .5  
PV = -11407.39 (add the \$1000 deposit)  
PMT = -100  
FV = **17584.61**

42. Part 1 – Keep changing the value of N (1, 2, 3) and calculate FV each time.

1 Quarter (FV = \$700)

2 Quarters (FV = \$1414)

3 Quarters (FV = \$2142.28)

N = Input values asked

I% = 2

PV = 0

PMT = -700

FV = Calculate

Part 2 – Keep changing the value of FV (5204, 10000) and calculate N each time. Round value of N **up** to the nearest quarter.

FV of \$5204 (7 quarters)

FV of \$10,000 (13 quarters)

N = Calculate

I% = 2

PV = 0

PMT = -700

FV = Input values asked