Unit 6 Practice

Name: _____   Date: _____

1) Dana is 41 years old. She is planning on retiring in 23 years. She has opened an IRA with an APR of 3.4% compounded monthly. If she makes monthly deposits of $300 to this account. Use the formula below to determine how much will she have in the account when she is ready to retire.

$$B = \frac{P\left(\left(1 + \frac{r}{n}\right)^{nt} - 1\right)}{\frac{r}{n}}$$

B = balance at end of investment period
P = periodic deposit amount
r = annual interest rate (as a decimal)
n = number of times interest is compounded annually
t = length of investment in years

$$B = \frac{300\left(\left(1 + \frac{0.034}{12}\right)^{12 \times 23} - 1\right)}{\frac{0.034}{12}}$$

$$B = \frac{355.03}{0.00283}$$

$$B = \$125,452.30$$

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2) Vanessa is 41 years old and plans to open a retirement account. She wants to have $450,000 in the account when she retires at age 66. Use the formula below to determine how much must she deposit each month into an account with an APR of 2.5% to reach her goal.

$$P = \frac{B\left(\frac{r}{n}\right)}{\left(1 + \frac{r}{n}\right)^{nt} - 1}$$

B = balance at end of investment period
P = periodic deposit amount
r = annual interest rate (as a decimal)
n = number of times interest is compounded annually
t = length of investment in years

t = 66 − 41
t = 25

$$P = \frac{450{,}000\left(\frac{0.025}{12}\right)}{\left(1 + \frac{0.025}{12}\right)^{12\times25} - 1}$$

$$P = \frac{937.5}{0.867}$$

$$P = \$1{,}081.31$$

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3) Jordan makes $95,000 per year. The company allows employees to make contributions to the 401k to a maximum of 12% of their salary. The maximum allowable contribution to any 401k for his company is $14,500.

   a) What is 12% of Jordan's salary?

   $$0.12 \times 95{,}000 = \$\mathbf{11,400}$$

   b) Using your answer from part a, what is the maximum amount that Jordan is allowed to contribute to his 401k?

   Since 12% of his salary is still less than the max allowable contribution, he can contribute all of the $11,400.

4) In 2009, Shawn had two jobs. He earned $63,400 working at Company A the first 7 months. He switched jobs in August and began to work at Company B, where he earned $71,500. Each of his employers took out the required 6.2% for Social Security.

   a) How much did Company A take out for social security?

   $$0.062 \times 63{,}400 = \$\mathbf{3,930.80}$$

   b) How much did Company B take out for social security?

   $$0.062 \times 71{,}500 = \$\mathbf{4,433.00}$$

   c) What was the total amount of Social Security taken out of Shawn's earnings that year?

   $$3{,}930.80 + \ 4{,}433 = \$\mathbf{8,363.80}$$

   d) The maximum amount an individual should pay for Social Security taxes that year was $6,621.60. How much Social Security tax did Shawn overpay?

   $$8{,}363.80 - 6{,}621.60 = \$\mathbf{1,742.20}$$

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5) Abby requests her annual Social Security statement from the Social Security Administration each year. She wants to check how many Social Security credits she received for 2009. She finds that to earn a credit it 2009, she needed to earn $1,090. She worked part-time all year and earned $300 per month.

a) How much money did she earn for the whole year?

$$\$300 \times 12 = \$\mathbf{3,600}$$

b) How many credits did she earn that year?

$$3,600 \div 1090 = 3.30 \qquad \textbf{She earned 3 credits.}$$

6) Marie reached age 62 in 2007. Over her life, she earned an average of $2,800 per month after her earnings were adjusted for inflation.

a) Use the formula below to determine her Social Security full retirement benefit.

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Social Security Benefits Formula

- 90% of the first $680 of monthly earnings
- 32% of the monthly earnings between $680 and $4,100
- 15% of the earnings, over $4,100

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- $0.90 \times 680 = \$612$

- amount earned over 680: $2800 - 680 = 2,120$. So $0.32 \times 2,120 = 678.40$

- $612 + 678.40 = \$\mathbf{1,290.40}$

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b) If Marie retired at the age of 64. What will her monthly benefit be since she did not wait until age 67 to receive full retirement benefits?

Early Retirement Reductions	
Retirement Age	Reduction
62	30%
63	25%
64	20%
65	13.3%
66	6.7%

She would get a 20% reduction.

Reduction amount: $.20 \times 1290 = 258$

Monthly benefit: $1,290.40 - 258 = \$\mathbf{1,032.40}$

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8) Evan has retired and is qualified to receive Medicare. If he continues to pay the current monthly premium of $134, how much will he pay for the year?

$134 \times 12 = \mathbf{\$1,608}$

9) Jonah is 40 years old. He wants to take out a 5-year level term insurance policy with a face value of $250,000. The *monthly* premium is $66. What will be Jack's total cost over the 5-year period?

Yearly premium: $66 \times 12 = \$792$

Total cost over 5-year period: $792 \times 5 = \mathbf{\$3,960}$

10) Lyden has a universal life insurance policy with a face value of $250,000. The current cash value of the policy is $9,450. If the premium is $82 per month, for how many months can the cash value be used to pay the premium?

$9,450 \div 82 = 115.27$ Lyden can pay from the cash value for 115 month (and will have a little extra but not enough to pay for another month)

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11) The Big Brother Company sells a five-year term life insurance policy with face value of $165,000 to Jacob for an annual premium of $342.

a) How much does the company lose if Jacob dies within those 5 years?

Year 1: $165,000 - 342 = \$164{,}658$ loss
Year 2: $165,000 - (2)342 = \$164{,}316$ loss
Year 3: $165,000 - (3)342 = \$163{,}974$ loss
Year 4: $165,000 - (4)342 = \$163{,}632$ loss
Year 5: $165,000 - (5)342 = \$164{,}290$ loss

b) What is the profit the company receives from selling this policy after those 5 years?

$342 \times 5 = \mathbf{\$1{,}710}$