Solutions

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CHAPTER 8: Financial Problems Involving Exponential Functions

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1. Complete the table (to the nearest penny).

Prinicpal ($)	Annual Interest Rate (%)	Time	Simple Interest Paid ($)	Amount
400	7.25	5 years	*145*	*545*
8098.22	$3\frac{3}{4}\%$	13 months	328.99	*8427.21*
760.60	5.5	*4.3 years*	180.00	940.60

2. Kurtis earned $279.40 in simple interest by investing a principal of $400 in a Treasury bill. If the interest rate was 3.35%/a, for how many years did he have his investment?

$$I = \Pr t$$
$$279.40 = (400)(0.0335)t$$
$$\frac{279.40}{(400)(0.0335)} = t$$
$$20.85 = t$$

Therefore, he had his investment for almost 21 years.

3. Complete the table (correct to 2 decimal places).

Principal ($)	Annual Interest Rate (%)	Years Invested	Compounding Period	Amount ($)	Interest Earned ($)
350	2.75	10	monthly	*460.64*	*110.64*
2500	8.5	2	semi-annually	*2952.87*	*452.87*
267.00	$2\frac{1}{4}\%$	7	annually	315.50	*48.50*
12 000	*3.24%*	7	weekly	15 053.88	*3053.88*

4. Calculate the amount you would end up with if you invested \$2500 at $4\frac{1}{2}$% /a compounded

semi-annually for 8 years?

$$P = 2500$$

$$i = \frac{0.045}{2} = 0.0225$$

$$n = 2 \times 8 = 16$$

$$A = P(1+i)^n$$

$$A = 2500(1.0225)^{16}$$

$$A = 3569.05$$

Therefore, you would end up with \$3569.05

5. Johnny borrowed money from a friend. The interest rate was 5.75%/a compounded monthly.
If Johnny will repay \$5667 over the next 6 years. How much money did Johnny borrow?

$$A = 5667$$

$$i = \frac{0.0575}{12} = 0.004791666$$

$$n = 6 \times 12 = 72$$

$$P = A(1+i)^{-n}$$

$$P = 5667(1.004791666)^{-72}$$

$$P = 4016.79$$

Therefore, Johnny borrowed \$4016.79

EXTRA QUESTIONS – Chapter 8   p. 526 #9,10