

Date _____

Name KEY

9.1 Simple Interest Assignment

Show all your work.

1. Merv deposits $\overset{P}{\$200.00}$ into an account for $\overset{t}{5}$ years earning $\overset{r}{3\%}$ per year.

a. Calculate the amount of simple interest.

$$I = Prt$$

$$= 200(0.03)(5) \quad I = \$30$$

b. Does Merv keep the interest or pay it? Explain.

2. Deanna borrows $\overset{P}{\$130.00}$ from a relative to help buy some items for her dance project. Deanna is charged $\overset{r}{1\%}$ interest per year and has $\overset{t}{2}$ years to pay the money back.

a. Calculate the amount of simple interest?

$$I = Prt$$

$$= 130(0.01)(2) \quad I = \$2.60$$

b. Who received the interest amount? How much money will that person receive?

The relative $\$132.60$ total profiting $\$2.60$

3. Determine the simple interest earned on a $\$1200.00$ investment with a 2% interest rate per year,

a. after the following time periods:

i. 26 weeks = 0.5 yr.

$$I = Prt$$

$$= 1200(0.02)\left(\frac{26}{52}\right)$$

$$= \$12$$

iii. 39 weeks = 0.75 yr.

$$= 1200(0.02)\left(\frac{39}{52}\right)$$

$$= \$18$$

ii. 2 months

$$= 1200(0.02)\left(\frac{2}{12}\right)$$

$$= \$4$$

iv. 24 months = 2 yr

$$= 1200(0.02)(2)$$

$$= \$48$$

b. How long will it take to double?

$$\text{Doubling } P = 1200(2) = \$2400 \quad \text{so } I = \$1200$$

$$I = Prt$$

$$t = \frac{I}{Pr} = \frac{1200}{1200(0.02)} = 50 \text{ years.}$$

4. Find the missing information.

- a. What principal invested at 5% simple interest per year will earn \$100 in interest at the end of 2 years?

$$P = ?$$

$$r = 5\% = 0.05$$

$$t = 2 \text{ yr.}$$

$$I = 100$$

$$I = Prt$$

$$P = \frac{I}{rt} = \frac{100}{0.05(2)} = \$1000$$

- b. What interest rate will allow \$2000 to earn \$120 interest in 2 years?

$$I = 120$$

$$P = 2000$$

$$r = ?$$

$$t = 2 \text{ yr.}$$

$$I = Prt$$

$$r = \frac{I}{Pt} = \frac{120}{2000(2)} = 0.03 = 3\%$$

- c. How much time will you need to invest \$1000 at a rate of 1% per year to earn \$100 in interest?

$$I = 100$$

$$P = 1000$$

$$r = 1\% = 0.01$$

$$t = ?$$

$$I = Prt$$

$$t = \frac{I}{Pr} = \frac{100}{1000(0.01)} = 10 \text{ years}$$

5. The balance at the end of 8 years on an investment of \$230 that was invested at a rate of 3% is \$285.20. What is the interest amount?

$$I = 285.20 - 230 = 55.20$$

$$P = 230$$

$$r = 3\% = 0.03$$

$$t = 8 \text{ yr.}$$

$$A = P + I$$

$$I = A - P = 285.20 - 230 = \$55.20$$

6. Rich wants to save \$1000 to buy a motorcycle. He receives \$500 for his birthday and decides to purchase a GIC. The bank offers GICs at a simple interest rate of 2%.

- a. How much will he have after 1 year?

$$P = 500$$

$$r = 2\% = 0.02$$

$$t = 1 \text{ year}$$

$$I = ?$$

$$A = ?$$

$$A = P + I$$

$$= P + Prt$$

$$= P(1 + rt)$$

$$= 500(1 + 0.02(1))$$

$$= \$510$$

- b. after 2 years?

$$A = P(1 + rt)$$

$$= 500(1 + 0.02(2))$$

$$= \$520$$

- c. How long will it take for Rich's investment to double and he can buy his bike?

$$I = 500$$

$$I = Prt$$

$$t = \frac{I}{Pr} = \frac{500}{500(0.02)} = 50 \text{ years}$$

- d. Suggest a better strategy for Rich to reach his goal.

Invest in higher risk investments, put a higher principal down

7. What amount of money, invested at 5% interest, will earn \$100 interest in 4 years?

$$I = 100$$

$$P = ?$$

$$r = 5\% = 0.05$$

$$t = 4 \text{ yr}$$

$$I = Prt$$

$$P = \frac{I}{rt} = \frac{100}{0.05(4)} = \$500$$

8. What interest rate will allow \$2000 to earn \$120 interest in 5 years?

$$I = 120$$

$$P = 2000$$

$$r = ?$$

$$t = 5 \text{ yr.}$$

$$I = Prt$$

$$r = \frac{I}{Pt}$$

$$r = \frac{120}{2000(5)}$$

$$= 0.012 = 1.2\%$$

9. How long will it take \$1000 to earn \$150 at an interest rate of 1%.

$$I = 150$$

$$P = 1000$$

$$r = 1\% = 0.01$$

$$t = ?$$

$$I = Prt$$

$$t = \frac{I}{Pr} = \frac{150}{1000(0.01)} = 15$$

P

10. Complete the table to determine Lisa's term deposit options for \$2500 she plans to invest.

Term	Simple Interest Rate	Interest Earned	Investment Value
1 year	2.45% simple interest	$I = Prt$ $I = 2500(0.0245)(1)$ $= \$61.25$	$A = P + I$ $A = 2500 + 61.25$ $= \$2561.25$
2 year	3.05% simple interest	\$152.50	\$2652.50
3 year	3.8% simple interest	\$285	\$2785

