

Name: KEY

Date: _____

Simple Interest Assignment

1) You invest \$2000 at 3.5% interest over 6 years. How much do you have in total at maturity?

$$I = Prt \quad \begin{array}{l} P = 2000 \\ r = 0.035 \\ t = 6 \end{array} \quad \begin{array}{l} I = (2000)(0.035)(6) \\ I = 420 \end{array}$$
$$\text{total} = 2000 + 420 = \text{\$}2420$$

2) Natasha invests \$25 000 for 6 months at 7%. How much interest has she made?

$$I = Prt \quad \begin{array}{l} P = 25000 \\ r = 0.07 \\ t = \frac{6}{12} \text{ or } \frac{1}{2} \end{array} \quad \begin{array}{l} I = (25000)(0.07)(0.5) \\ I = \text{\$}875 \end{array}$$

3) Gordon takes a loan from the bank at 6% simple interest. He borrows \$6000 and will end up paying back \$2520 in interest. How long has it taken him to pay off the loan?

$$I = Prt \quad \begin{array}{l} P = 6000 \\ r = 0.06 \\ t = ? \\ I = 2520 \end{array} \quad \begin{array}{l} 2520 = (6000)(0.06)t \\ 2520 = 360t \\ \frac{2520}{360} = \frac{360t}{360} \\ 7 = t \end{array} \quad \text{7 years}$$

4) You invest \$9000 at 8% and end up with \$540. How many months was it invested for?

$$I = Prt \quad \begin{array}{l} P = 9000 \\ r = 0.08 \\ t = ? \\ I = 540 \end{array} \quad \begin{array}{l} I = Prt \\ 540 = (9000)(0.08)t \\ 540 = 720t \\ \frac{540}{720} = t \\ 0.75 = t \\ \frac{3 \times 3}{4 \times 2} = t \end{array} \quad \begin{array}{l} \frac{540}{720} = t \\ 0.75 = t \\ \frac{3 \times 3}{4 \times 2} = t \end{array} \quad \text{9 months}$$

5) Jennifer invests her inheritance of \$180 000 at 5.5%.

a) How much will she make in interest per year?

$$I = Prt \quad \begin{array}{l} P = 180000 \\ r = 0.055 \\ t = 1 \end{array} \quad \begin{array}{l} I = (180000)(0.055)(1) \\ I = \text{\$}9900 \end{array}$$

b) How much will she make after 5 years?

$$I = (180000)(0.055)(5) = \text{\$}49500$$

c) Would you spend the inheritance, or just spend the interest? Explain.

just the interest, so you can keep making interest off of the principal

6) You make \$728 in simple interest over 4 years at 3.5%. How much was originally invested?

$$I = Prt$$

$$728 = P(0.035)(4)$$

$$728 = 0.14 P$$

$$\frac{728}{0.14} = \frac{0.14 P}{0.14}$$

$$5200 = P$$

7) You win the lottery (\$1 000 000) and invest it at 7.5% simple interest over 3 years in order to purchase a house.

a) If you are going to use the interest as a down payment, how much do you have?

$$I = Prt$$

$$I = (1\,000\,000)(0.075)(3)$$

$$I = \$225\,000$$

b) The house costs \$600 000, and you use part of your winnings to pay off the remaining balance after the down payment. How much money do you have left?

$$\begin{array}{r} 600\,000 \\ - 225\,000 \\ \hline 375\,000 \end{array}$$

$$\begin{array}{r} 1\,000\,000 \\ - 375\,000 \\ \hline \$625\,000 \text{ left} \end{array}$$

c) You then invest the remaining money at 6% simple interest over 10 years. How much **in total** do you now have?

$$I = Prt$$

$$I = (625\,000)(0.06)(10)$$

$$I = 375\,000$$

$$P = 625\,000$$

$$r = 0.06$$

$$t = 10$$

$$\text{total} = 625\,000 + 375\,000$$

$$= \$1\,000\,000$$