

Nidaa

1000

Want: Total Amount = \$2000
 $A = P + I$

Example 5: Erin invests \$1000. Her account pays 10% simple interest per year. Determine how long she needs to invest her money if she wants her investment to double. $\rightarrow 2000$

$$I = Prt$$
$$t = \frac{(A - P)}{Pr}$$
$$t = \frac{(2000 - 1000)}{1000 \times 0.10}$$

$$t = \frac{2000 - 1000}{1000 \times 0.10}$$
$$t = \frac{1000}{100}$$

$t = 10$ year she needs to invest her money to the double.

Example 6: Zak invests \$3000 in a simple interest account. He leaves it there for 6 years. Determine the annual interest rate if his investment is worth \$3090. $P = \$3000$ $t = 6$ years $A = \$3090$

$$A = P + Prt$$
$$(A - P) = Prt$$
$$r = \frac{(A - P)}{Pt}$$

$$r = \frac{(3090 - 3000)}{3000 \times 6}$$

$$r = \frac{90}{18000}$$

$$r = 0.005$$
$$r = 0.5\%$$

the annual interest rate for 6 years

THINK ABOUT IT! Do you think the interest rate from Example 6 or the interest rate from Example 5 more is more realistic?

homework:

1. Suppose Hilliard put \$1500 in a bank account that pays 3% simple interest a year. $P = 1500$
a) If he keeps his money in the bank for 9 years, how much interest does he make?
 $I = Prt$
 $I = 1500 \times 0.03 \times 9$
 $I = 405$ the interest he made for 9 years

b) What is the final amount?
 $A = P + I$ $A = 1500 + 405 \therefore A = 1905$ the final amount.

2. James borrows \$3000 to buy a used car. The loan charges 21% simple interest per year. Determine how much he will owe if he pays back the loan in 3 years. $P = \$3000$ $r = 21\%$

$$A = P + Prt$$
$$A = 3000 + 3000 \times 0.21 \times 3$$
$$A = \$4890$$

3. Natalina invests \$800 in a simple interest account. She leaves it there for 6 years. Determine the annual interest rate if her investment is worth \$1136 in the end. $P = \$800$ $t = 6$ years

$$\frac{(A - P)}{Pt} = r$$
$$r = \frac{(1136 - 800)}{800 \times 6}$$
$$r = \frac{336}{4800}$$
$$r = 0.07$$

$\therefore r = 7\%$ the annual interest rate in the end. 7 percent.

4. Sarah invested \$500 in a simple interest account. Her account pays her 0.6% interest. How long does she need to leave her money in the bank if she wants it to double in value? $P = \$500$ $r = 0.6\%$

$$t = \frac{(A - P)}{Pr}$$
$$t = \frac{(1000 - 500)}{500 \times 0.006}$$

$$t = \frac{500}{3}$$
$$t = 166.66$$
$$t \approx 167 \text{ years}$$

$$A = \$1000$$
$$\frac{0.6}{100} = 0.006$$