7.1 Simple Interest

Interest - money charged by a lender to borrow
OR money earned by the lender for lending money

Simple Interest

$$I = Prt$$

I = interest earned ($)
P = principal ($ invested or borrowed)
r = annual interest rate (%)
t = time (yrs)

[only paid once]

ex 1 a) If $\$2500$ (P) is invested for 2.5 yrs (t) at 4.5% (r) simple interest, how much interest was earned?

$$I = Prt$$
$$= 2500(0.045)(2.5)$$
$$= \$281.25$$

b) if the same investment was for 6 months, how much interest earned?

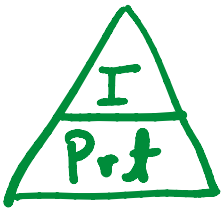
6 months, $6 = \frac{1}{2}$

b) If the same ... how much interest earned?

$\frac{6}{12} = \frac{1}{2}$ IN YEARS

$$I = Prt$$
$$= 2500(0.045)(0.5)$$
$$= \$56.25$$

ex.2 a) Find the principal when interest rate is 2.75% for $1\frac{1}{2}$ yrs and interest earned is \$206.25



$$P = \frac{I}{rt} = \frac{206.25}{(0.0225)(1.5)}$$

$$P = \$5000$$

b) What is the interest rate if \$2000 earns \$75 of interest in $1\frac{1}{2}$ yrs?

$$r = \frac{I}{Pt} = \frac{75}{[(2000)(1.5)]}$$
$$= 0.025$$
$$r = 2.5\%$$

Total Amount of an investment or loan is the principal + interest
OR money borrowed + interest

OR money borrowed + ...

$$A = P + I$$
$$* A = P + Prt$$
$$* A = P(1 + rt)$$

A = amount $

ex. 3 How much money would you have in 8 months if you invested $1500 at 2%?

$\frac{8}{12} = \frac{2}{3}$ years

P = 1500, r = 2%

$$A = P(1 + rt)$$
$$= 1500\left(1 + (0.02)\left(\tfrac{2}{3}\right)\right)$$
$$= \$1520$$

ex. 4 How much would you need to invest to have $1200 after 2 yrs at 3% interest?

$1200 = total = A$, t = 2 yrs, r = 3%

$$A = P(1 + rt)$$
$$1200 = P(1 + (0.03)(2))$$
$$\frac{1200}{(1 + (0.03)(2))} = P$$
$$\$1132.08 = P$$

p. 117 # 5-7, 9-11, 16-19

p 617 # 5-7, 9-11, 16-19