6.7 Simple Interest p.254

Interest: money paid or earned for the use of money

Principal: the amount of money borrowed or deposited

Simple Interest: money paid or earned on the principal only

$I = prt$

- I → Simple interest
- p → principal ($)
- r → rate (% → decimal)
- t → time (years)

* if time is in months, divide it by 12
  - 3 mos → 0.25
  - 6 mos → 0.5
  - 9 mos → 0.75
  - 18 mos → 1.5

Find the simple interest and the balance:

1. You put $500 in a savings account. The account earns 3% simple interest per year.

   a) What is the interest after 3 years?

   $I = prt$
   $= (500)(0.03)(3)$
   $I = \$45$

   b) What is the balance after 3 years?

   balance $= P + I$
   $500 + 45$
   $\$545$

2. You take out a $1500 loan for a used car. The interest is 4% for 5 years. What is the amount paid for the loan?

   $I = prt$
   $= (1500)(0.04)(5)$
   $I = \$300$

   $1500 + 300$
   $\$1800$ paid for the loan

3. What is the amount paid for the loan of $1800 @ 6.5% for 30 months?

   $\frac{30}{12} = 2.5$ years

   $(1800)(0.065)(2.5)$
   $I = \$292.50$

   paid for loan: $1800 + 292.50 = \$2092.50$

Find the time: (answer is in years)

4. I = $30, P = $500, r = 3%

$I = prt$

$30 = (500)(0.03)t$

$\frac{30}{15} = \frac{15t}{15}$

$2 = t$

2 years

5. I = $54, P = $800, r = 4.5%

$I = prt$

$54 = (800)(0.045)t$

$\frac{54}{36} = \frac{36t}{36}$

$1.5 = t$

1.5 years

Find the principal: $ 1.5 yr

6. I = $828.75, t = 18 months, r = 6.5%

$I = prt$

$828.75 = 1.5(0.065)p$

$\frac{828.75}{0.0975} = \frac{0.0975p}{0.0975}$

p = $8500

7. I = $119.88, t = 3 years, r = 3.6%

$I = prt$

$119.88 = (0.036)(3)p$

$\frac{119.88}{0.108} = \frac{0.108p}{0.108}$

p = $1110

* Find the rate: turn answer back into a percent (x 100)

8. I = $24, P = $400, t = 2 years

$I = prt$

$24 = (400)(2)r$

$\frac{24}{800} = \frac{800r}{800}$

$0.03 = r$

3%

9. I = $54, P = $900, t = 18 months → 1.5 yrs

$I = prt$

$54 = (900)(1.5)r$

$\frac{54}{1350} = \frac{1350r}{1350}$

$0.04 = r$

4%