$$I = PRT$$

Finance 1 - Simple Interest Homework

1. Calculate the amount of simple interest earned on each of the following principal amounts at the rate and term given.

   a) Principal: $1000   Rate: 2.5% per annum   Term: 1 year

   $$I = 1000 \times 0.025 \times 1 = \$25$$

   b) Principal: $1000   Rate: 5% per annum   Term: 1 year

   $$I = 1000 \times 0.05 \times 1 = \$50$$

   c) Principal: $1000   Rate 2.5% per annum   Term: 2 years

   $$I = 1000 \times 0.025 \times 2 = \$50$$

   d) What happens to the amount of interest earned when the principal and term stay the same but the rate doubles?

   It doubles too!

   e) What happens to the amount of interest earned when the principal and the rate stay the same but the term doubles?

   It also doubles!

2. How much money would you have after 10 years if you deposited $1000 at a rate of 4.5% simple interest per annum?

   $$I = 1000 \times 0.045 \times 10 = \$450$$
   $$A = 1000 + 450 = \$1450$$

3. Sam deposits $2500 into an account earning simple interest. What rate is he getting if the account balance after 9 months is $2603.13?

   $$I = 2603.13 - 2500 = \$103.13$$
   $$I = PRT$$
   $$103.13 = 2500(R)\left(\tfrac{9}{12}\right)$$
   $$103.13 = 1875R$$
   $$R = 0.055$$
   $$= 5.5\%$$

4. Mr. H owes $1000 in interest after borrowing a sum of money for <u>four months</u> at 10% simple interest. If Mr. H repays the interest and principal after four months, how much is paid back in total?

$$1000 = P(0.1)\left(\tfrac{4}{12}\right) \qquad P = \$30000$$

$$1000 = 0.0\overline{3}P \qquad Total: \quad 30000 + 1000 = \$31,000$$

5. How many months does it take to earn $180 interest on an investment if the principal is $5000 and the interest rate is 2% per annum?

$$180 = 5000(0.02)(t) \qquad t = 0.0\overline{55} \ yrs. \ \times 12$$

$$180 = 100t \qquad\qquad = 6.\overline{6} \ months$$

6. Calculate the annual interest rate on an investment if the principal is $4000 and the interest is $120 earned over three years.

$$120 = 4000(r)(3) \qquad \nearrow \quad r = 0.01$$

$$120 = 12000r \qquad\qquad = 1\%$$

7. Johnny borrowed $1500 for vehicle repairs from his parents. He agreed to pay back the loan plus 6.5% simple interest on the $1500 added on in equal monthly payments over the next 6 months.

a) How much interest will Johnny have to pay?

$$I = 1500 \times 0.065 \times \left(\tfrac{6}{12}\right) = \$48.75$$

b) What will be the total amount he will have to pay?

$$Total = 1500 + 48.75 = \$1548.75$$

c) What will be his monthly payment for the loan?

$$1548.75 \div 6 = \$258.13$$