

Simple and Compound Interest

1. Find the simple interest earned on \$6000 at 12% pa for 5 years.

$$I = PRt$$

$$P = \$6000 \quad R = \frac{12}{100} \quad T = 5$$

$$I = \$6000 \times \frac{12}{100} \times 5$$

$$\therefore I = \$3600$$

Indicated sound understanding of simple interest

2. A new car, valued at \$28 000, depreciates at 9% pa. Find the value of the car 3 years after purchase.

$$A = P(1-r)^T$$

$$= 28000 \left(1 - \frac{9}{100}\right)^3$$

$$A = \$21,010.00$$

Recognised that depreciation decreases the value of an item

3. (a) Using the compound interest formula, find the amount that \$5000 will grow to when investing at a rate of 12% pa. for 2 years, compounded quarterly.

$$A = P(1+r)^n$$

$$A = 5000 \left(1 + \frac{12}{100}\right)^2$$

$$= \cancel{\$1568}$$

$$= 5000 + 1568 = \$6568$$

Indicated understanding of components of the compound interest formula

- (b) Find the interest earned.

$$= 5000 + 1568$$

$$= \$6568$$

$$\therefore \text{interest earned} = \$1568$$

4. \$240 interest is earned on a principal of \$1500 at a simple interest rate of 4% pa. For how many years was the principal invested?

$$T = \frac{P}{IR}$$

$$T = \frac{1500}{240 \times \frac{4}{100}}$$

$$T = 1.5 \text{ years.}$$

Attempted to apply the simple interest formula to calculate the number of years the principal was invested.

5. Stephen bought a car for \$12 400 on the following terms:

15% deposit

18% pa simple interest

Repayments made monthly for 2 years

- (a) How much was the deposit?

$$= \frac{15}{100} \times 12400$$

$$= \$1860$$

- (b) What was the balance owing after payment of the deposit?

$$= 12400 + 1860$$

$$= \$14260$$

- (c) How much interest was charged on the balance?

$$= 14260 \times \frac{18}{100}$$

$$= \$2566.80$$

- (d) What was the total amount of Stephen's repayment over the 2 years?

$$= 12400 + 2566.80$$

$$= \$14966.80$$

- (e) What was the amount of each monthly repayment?

~~$$= \frac{14966.80}{12}$$~~
~~$$= \$1247.23$$~~

$$= 12400 \div 12$$

$$= \$1033.33$$

Correctly calculated the deposit but incorrectly calculated the balance owing

Indicated some understanding of steps involved in calculating the interest and monthly repayments

Grade Commentary

Chandra has demonstrated some knowledge and understanding of simple and compound interest and has used appropriate formulae to solve familiar problems, but applied the formulae incorrectly. Chandra indicated some understanding of the processes involved when purchasing an item on terms. This work sample has demonstrated characteristics of work typically produced by a student performing at grade D4 level.