Simple and Compound Interest

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

$I = P \times r \times t$

$I = \$6000 \times 12\% \times 5$

$= \$3600$

Indicated understanding of simple interest and recognised that depreciation decreases the value of an item

2. A new car, valued at $28000, depreciates at 9% pa. Find the value of the car 3 years after purchase.

$9\% \times 28{,}000 = \$2520$ pa

$\$2520 \times 3 = \$7560$

$28000 - 7560$

$= \$20440$

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

$A = 5000(1 + 12\%)^2$

$= \$6272$

(b) Find the interest earned.

$I = A - P$

$= \$6272 - \$5000$

$= \$1272$

Demonstrated knowledge of the compound interest formula and of calculating the interest earned, but incorrectly applied the concept of quarterly interest

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

$t = \frac{I}{(PR)}$

$t = \frac{240}{(1500 \times 4\%)}$

$= 4$ years

Indicated clear understanding of changing the subject of the simple interest formula in determining the number of years

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?

15% × 12400
= $1860

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

$12400 - $1860
= $10540

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

18% × 10540
= $1897.20

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

$1897.20 ÷ 2
= $948.60

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

$1897.20 ÷ 24
= $79.05

Correctly calculated the deposit and balance owing. Attempted to calculate the interest and total amount to be repaid. Recognised the need to convert years into months to determine the monthly repayments

Grade Commentary

Bailey has demonstrated some understanding of simple and compound interest in solving simple familiar problems. There was appropriate use of strategies to calculate the simple interest and change the subject of the simple interest formula. Bailey has demonstrated knowledge and understanding of applying the compound interest formula, but was unable to apply the concept of quarterly interest. This work sample has demonstrated characteristics of work typically produced by a student performing at a grade D4 level.