## Simple and Compound Interest

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

$$
\begin{aligned}
& I=P \times T K R \\
& I=\$ 6000 \times 12 \% \times 5 \\
& \text { simple interest earned }= \\
& \$ 3600
\end{aligned}
$$

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

$$
\left.\begin{array}{l}
A=P(1-r)^{T} \begin{array}{l}
P=28000 \\
R=9 \% \\
T=3
\end{array} \\
A=28000(1-9 \%)^{3} \\
\text { value after } 3 \% \text { ur }
\end{array}\right\}
$$

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.

(b) Find the interest earned.

$$
\begin{aligned}
& 5000+6272 \\
& \text { Interest earned } \\
& =\$ 11272 \text {. }
\end{aligned}
$$

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

$$
\begin{aligned}
& I=240 \text { intovest earned } \\
& P=1500 \\
& R=4 \% \text { per year } \\
& \frac{240}{1500}=\frac{1500 \times 4 \%}{15000.16 \times 4 \%}
\end{aligned}
$$

Successfully applied the simple interest formula and recognised that depreciation decreases the value of an item

Indicated an understanding of components of the compound interest formula, but incorrectly applied the concept of quarterly interest

Attempted to apply the simple interest formula to calculate the number of years the principal was invested
5. Stephen bought a car for $\$ 12400$ on the following terms:

15\% deposit
18\% pa simple interest
Repayments made monthly for 2 years
(a) How much was the deposit?

$$
\begin{aligned}
& 12400 \times 15 \% \\
& =1860 \text { yes } \\
& 12400-1860 \\
& \text { deposit }=\$ 10540
\end{aligned}
$$

Indicated an understanding of calculating the deposit
(b) What was the balance owing after payment of the deposit?

$$
\begin{aligned}
& 12400 \times 18 \% \\
& = \pm 2232
\end{aligned}
$$

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

$$
\begin{aligned}
& 13 \% \\
& 12400-2232 \\
& \text { interest charged on the } \\
& \text { balance } \Rightarrow \$ 101-68
\end{aligned}
$$

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

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


Attempted to calculate the interest on the balance owing

Attempted to add the deposit and balance owing. Recognised the need to convert years into months to determine the monthly repayments

## Grade Commentary

Harley demonstrated some knowledge and understanding of simple and compound interest. The response applied simple and compound interest formulae to familiar problems, recognising the need to convert rates and periods, however the final calculations are incorrect. Harley attempted to apply some knowledge and processes in the calculation of the amount paid for an item purchased on terms. This work sample demonstrated characteristics of work typically produced by a student performing at a grade D4 level.

