

1 Daniella is 8 years old and Edward is 12 years old.

(a) Their parents give them some money in the ratio of their ages.

(i) Write the ratio Daniella's age : Edward's age in its simplest form.

$$\frac{8:12}{= 2:3} \div 4$$

Answer(a)(i) ..... 2 : 3 [1]

(ii) Daniella receives \$30.

Show that Edward receives \$45.

$$\text{Answer(a)(ii)} \quad \frac{3}{2} \times \$30 = \$45$$

[1]

(iii) What percentage of the total amount of money given by their parents does Edward receive?

$$\frac{3}{2+3} \times 100\% = \frac{3}{5} \times 100\% = 60\%$$

Answer(a)(iii) ..... 60 % [2]

(b) Daniella invests her \$30 at 3% per year, **compound** interest.

Calculate the amount Daniella has after 2 years.

Give your answer correct to 2 decimal places.

$$\begin{aligned} \text{Total Amount} &= \$30 \times \left(1 + \frac{3}{100}\right)^2 \\ &= \$30 (1.03)^2 \\ &= \$31.827 \\ &\approx \$31.83 \end{aligned}$$

Answer(b) \$ ..... 31.83 [3]

(c) Edward also invests \$30.

He invests this money at a rate of  $r\%$  per year, **simple** interest.

After 5 years he has a total amount of \$32.25.

Calculate the value of  $r$ .

$$\begin{aligned} \text{Interest} &= \$32.25 - \$30 \\ &= \$2.25 \end{aligned}$$

$$\text{Interest} = \$30 \times \frac{r}{100} \times 5$$

$$\$2.25 = \$1.5r$$

$$\frac{2.25}{1.5} = r$$

$$r = 1.5$$

Answer(c)  $r =$  ..... 1.5 [2]