Worked answers | Ratios and rates

Direct-proportion tables and graphs

6 questions | 12 marks

Equivalent correct methods earn the corresponding marks.

1. A table has x-values 1, 2, 4 and y-values 5, 10, 20. Find k in $y = kx$. [2 marks]

$\frac{5}{1} = \frac{10}{2} = \frac{20}{4} = 5$.

Answer: $k = 5$.

2. For $y = 7x$, find y when x is 0, 2 and 5. [2 marks]

Multiply each x-value by 7.

Answer: 0, 14 and 35.

3. Six identical tickets cost AUD 45 with no fee. Find the cost of nine tickets. [2 marks]

Each ticket costs $45 \div 6 = 7.50$.

Nine cost $9 \times 7.50 = 67.50$.

Answer: AUD 67.50.

4. Explain whether $y = 6x$ represents direct proportion. [2 marks]

The ratio $\frac{y}{x} = 6$ whenever $x \neq 0$.

The graph passes through $(0, 0)$.

Answer: Yes: the constant of proportionality is 6.

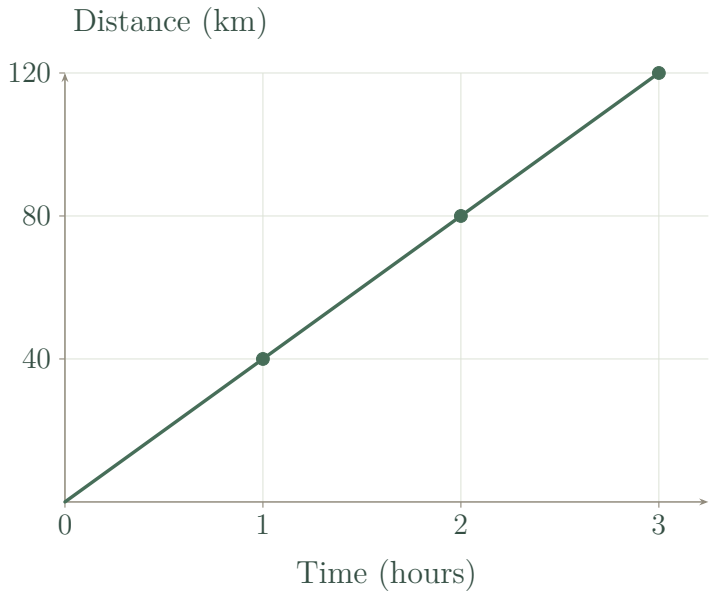
5. A table contains $(1, 4)$, $(2, 7)$, $(3, 10)$. Is y directly proportional to x? Explain. [2 marks]

The ratios are 4, 3.5 and $\frac{10}{3}$, which are not equal.

The rule $y = 3x + 1$ has a nonzero starting value.

Answer: No.

6. Using the supplied graph, how long does it take to travel 80 km? [2 marks]



Read 80 km across to the line and down to the time axis.

Equivalently, $t = 80 \div 40 = 2$.

Answer: 2 hours.