

Number - Proportion Inverse

Q1

P is inversely proportional to V .

When $V = 8$, $P = 5$

(a) Find a formula for P in terms of V .

$$P = \dots\dots\dots$$

(3)

(b) Calculate the value of P when $V = 2$

$$\dots\dots\dots$$

(1)

(Total 4 marks)

Number - Proportion Inverse

Q2

y is **inversely** proportional to the square of x .

When $y = 9$, $x = 2$.

(a) Use this information to find a formula connecting y and x .

(a) _____ [2]

(b) Find the value of y when $x = 10$.

(b) _____ [1]

(c) Find the values of x when $y = 4$.

(c) _____ [2]

Number - Proportion Inverse

Q1

P is inversely proportional to V .

When $V = 8$, $P = 5$

$$\text{Let } P = \frac{k}{V}$$

(a) Find a formula for P in terms of V .

Substitute $V = 8$, $P = 5$ to find k

$$5 = \frac{k}{8}$$

$$\Rightarrow 5 \times 8 = k$$

$$40 = k$$

$$\text{Therefore } P = \frac{40}{V}$$

$$P = \frac{40}{V} \quad (3)$$

(b) Calculate the value of P when $V = 2$

$$\text{when } V = 2 \quad P = \frac{40}{2} = 20$$

$$P = 20 \quad (1)$$

(Total 4 marks)

Number - Proportion Inverse

Q2

y is **inversely** proportional to the square of x .

When $y = 9$, $x = 2$.

(a) Use this information to find a formula connecting y and x .

$$\text{Let } y = \frac{k}{x^2}$$

Substitute $y = 9$, $x = 2$ to find k

$$9 = \frac{k}{2^2}$$

$$9 = \frac{k}{4}$$

$$9 \times 4 = k$$

$$36 = k$$

$$\text{Therefore } y = \frac{36}{x^2}$$

$$(a) \quad y = \frac{36}{x^2} \quad [2]$$

(b) Find the value of y when $x = 10$.

when $x = 10$

$$y = \frac{36}{10^2} = \frac{36}{100} = 0.36$$

$$(b) \quad y = 0.36 \quad [1]$$

(c) Find the values of x when $y = 4$.

when $y = 4$

$$4 = \frac{36}{x^2}$$

$$4x^2 = 36$$

$$x^2 = \frac{36}{4}$$

$$x^2 = 9$$

$$(c) \quad x = \pm 3 \quad [2]$$

$$x = \pm \sqrt{9}$$

$$x = \pm 3$$

Notice question asks for values of x so both $+3$ and -3 are required