

Topic 19 Proportion equations (Pre-TT) [28]

1.

y is directly proportional to \sqrt{x}

x	36	a
y	2	5

Work out the value of a .

[4 marks]

2.

In a circuit, the resistance, R ohms, is inversely proportional to the current, I amps.
When the resistance is 12 ohms, the current in the circuit is 8 amps.

(a) Find an equation connecting R and I .

(3)

(b) Find the current when the resistance in the circuit is 6.4 ohms.

(2)

(Total 5 marks)

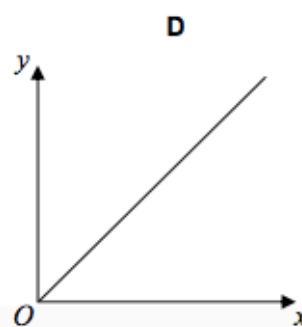
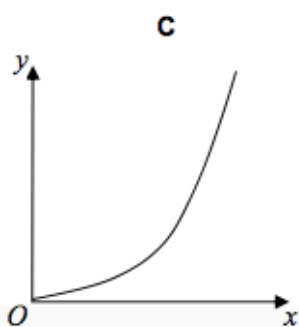
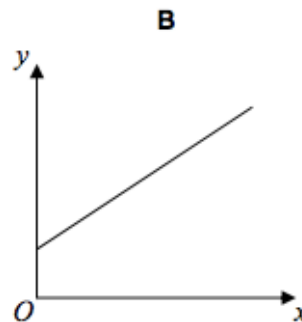
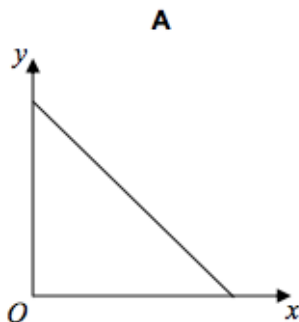
3.

y is directly proportional to x .

Which graph shows this?

Circle the correct letter.

[1 mark]



4.

y is inversely proportional to the square root of x . When $x = 16$, $y = 2$

What is the value of y when $x = 0.25$?

(Total 3 marks)

5.

A stone is dropped from rest and falls d metres in t seconds.

The distance the stone falls is proportional to the square of the time it takes to fall.

The stone falls 490 metres in 10 seconds.

(a) Find an equation connecting d and t .

(3)

(b) How far does the stone fall in 2.5 seconds?

(1)

(c) Sketch a graph of d against t .

(1)

(Total 5 marks)

6.

The illumination, L , provided by a torch is inversely proportional to the square of the distance, d , from the torch.

When $L = 2$, $d = 10$.

(a) Find an equation expressing L in terms of d .

(3)

(b) Find the value of L when $d = 2$.

(1)

(c) Find the value of d when $L = 8$.

(2)

(Total 6 marks)

7.

In an experiment measurements of t and h were taken. These are the results.

t	2	5	6
h	10	62.5	90

Which of these rules fits the results?

(A) $h \propto t$

(B) $h \propto t^2$

(C) $h \propto t^3$

You **must** show all your working.

(Total 4 marks)