



EXAM PAPERS PRACTICE

GCSE OCR Math J560

Direct & Inverse Proportion

Question Paper

*"We will help you to
achieve A Star "*



Question 1

p is inversely proportional to t .

When $t = 4$, $p = 12$

Find the value of p when $t = 6$

[3 marks]

Question 2

d is inversely proportional to c

When $c = 280$, $d = 25$

Find the value of d when $c = 350$

[3 marks]

Question 3

y is inversely proportional to x

When $x = 1.5$, $y = 36$

Find the value of y when $x = 6$

[3 marks]



Question 4

At a depth of x metres, the temperature of the water in an ocean is $T^{\circ}\text{C}$.
At depths below 900 metres, T is inversely proportional to x .

T is given by

$$T = \frac{4500}{x}$$

- (a) Work out the difference in the temperature of the water at a depth of 1200 metres and the temperature of the water at a depth of 2500 metres.

[3 marks]

Question 5

y is directly proportional to the square of x .

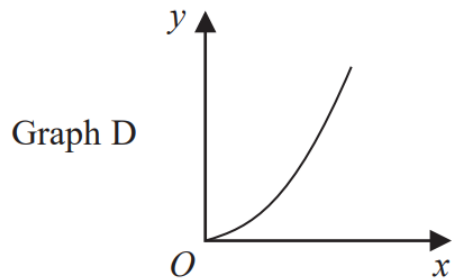
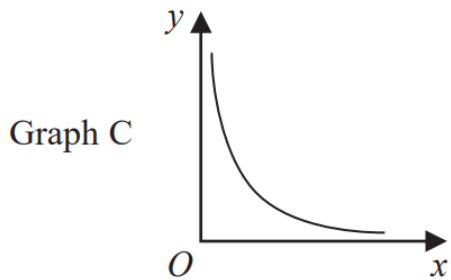
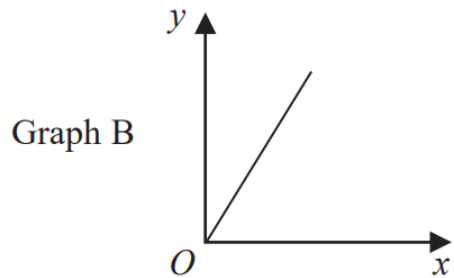
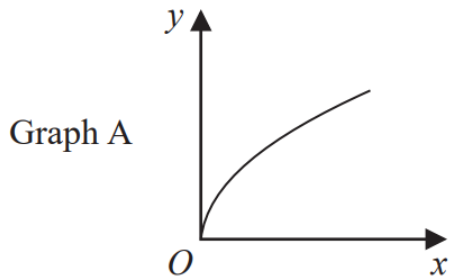
When $x = 3$, $y = 36$

Find the value of y when $x = 5$

[4 marks]



Question 6



The graphs of y against x represent four different types of proportionality.

Match each type of proportionality in the table to the correct graph.

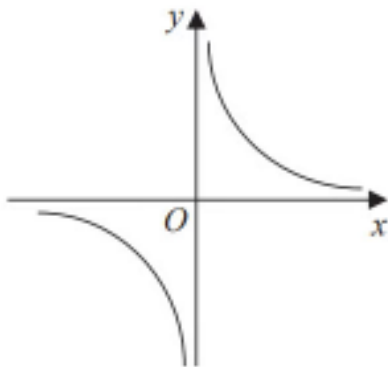
Type of proportionality	Graph letter
$y \propto x$	
$y \propto x^2$	
$y \propto \sqrt{x}$	
$y \propto \frac{1}{x}$	

[2 marks]

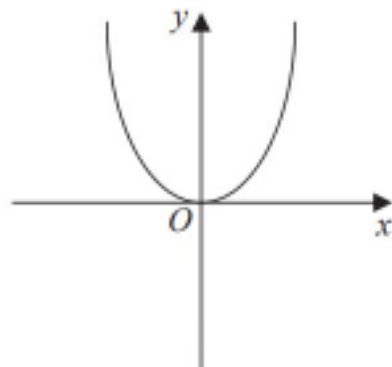


Question 7

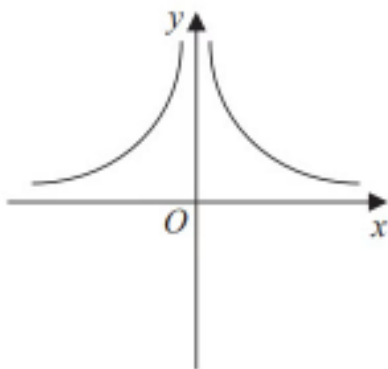
These graphs show four different proportionality relationships between y and x .



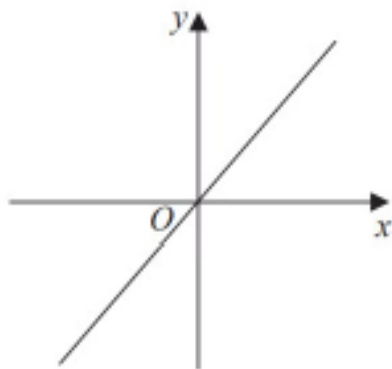
Graph A



Graph B



Graph C



Graph D

Match each graph with a statement in the table below.

Proportionality relationship	Graph letter
y is directly proportional to x	
y is inversely proportional to x	
y is proportional to the square of x	
y is inversely proportional to the square of x	

[2 marks]



Question 8

Given that $y \propto \frac{1}{x^2}$, complete this table of values.

x	1	2	5	10
y				1

[4 marks]

Question 9

T is inversely proportional to d^2

$T = 12$ when $d = 8$

Find the value of T when $d = 0.5$

[3 marks]

Question 10

(b) Find the positive value of x when $y = 16$

[2 marks]



Question 11

y is inversely proportional to d^2

When $d = 10$, $y = 4$

d is directly proportional to x^2

When $x = 2$, $d = 24$

Find a formula for y in terms of x .

Give your answer in its simplest form.

[5 marks]

Question 12

h is inversely proportional to the square of r .

When $r = 5$, $h = 3.4$

Find the value of h when $r = 8$

[3 marks]

Question 13

The intensity of the sound, I watts/m², received from a loudspeaker is inversely proportional to the square of the distance, d metres, from the loudspeaker.

When $d = 2$, $I = 30$

Work out the value of I when $d = 10$

[3 marks]



Question 14

The table shows a set of values for x and y .

x	1	2	3	4
y	9	$2\frac{1}{4}$	1	$\frac{9}{16}$

y is inversely proportional to the square of x .

(a) Find an equation for y in terms of x .

[2 marks]

Question 15

y is directly proportional to $\sqrt[3]{x}$

$$y = 1\frac{1}{6} \text{ when } x = 8$$

Find the value of y when $x = 64$

[3 marks]