

Name: _____

GCSE (1 – 9)

Direct and Inverse Proportion

Instructions

- Use **black** ink or ball-point pen.
- Answer all questions.
- Answer the questions in the spaces provided
– *there may be more space than you need.*
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- You must **show all your working out.**

Information

- The marks for each question are shown in brackets
– *use this as a guide as to how much time to spend on each question.*

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end

1 A machine fills 1000 bottles in 5 hours.

Work out how many hours it would take the machine to fill 1200 bottles.

.....

(Total for question 1 is 2 marks)

2 It costs £0.75 to buy 5 bananas.

Work out how much it would cost to buy 7 bananas.

.....

(Total for question 2 is 2 marks)

3 3 tins of beans and 4 tins of tomatoes costs £2.73.

5 tins of beans costs £1.55.

Work out how much one tin of tomatoes costs.

.....

(Total for question 3 is 2 marks)

4 There are 500 sheets in a pack of paper. 500 sheets of paper weigh 2.5kg.

Work out the weight of 50 sheets of paper.

.....

(Total for question 4 is 2 marks)

5 It takes 2 painters 4 days to complete a job.

Work out how many days it would take 1 painter to complete the same job.

.....

(Total for question 5 is 2 marks)

6 It takes 3 machines 2 days to produce a batch of products

Work out how long it would take 1 machine to produce the same batch of products.

.....

(Total for question 6 is 2 marks)

7 It takes 3 painters 6 days to complete a job.

Work out how many days it would take 2 painters to complete the same job.

.....

(Total for question 7 is 2 marks)

8 It takes 5 machines 6 hours to produce 1000 DVDs

Work out how long it would take 4 machines to produce 1000 DVDs.

.....

(Total for question 8 is 2 marks)

9 x is inversely proportional to y .

x is given by the formula: $x = \frac{1000}{y}$

Find the value of x when $y = 50$

$x = \dots\dots\dots$

(Total for question 9 is 2 marks)

10 y is directly proportional to x .

y is given by the formula: $y = 0.4x$

Find the value of y when $x = 6$

$y = \dots\dots\dots$

(Total for question 10 is 2 marks)

11 The weight of a piece of wire (w grams) is directly proportional to its length (l cm).

w is given by the formula: $w = 30l$

Find the length of a wire weighing 75 grams.

$l = \dots\dots\dots$ cm

(Total for question 11 is 2 marks)

12 The force, F , between two magnets is inversely proportional to the square of the distance, x cm, between them.

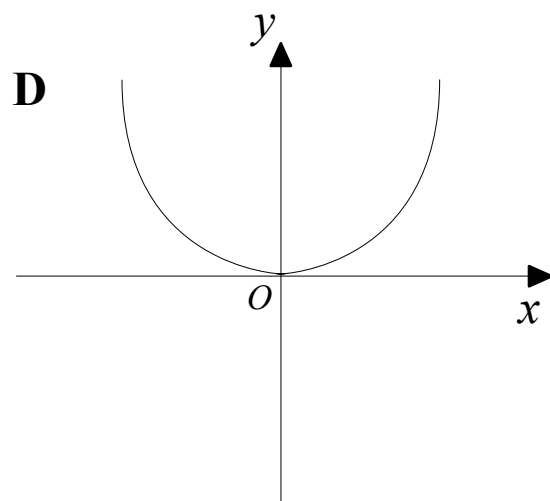
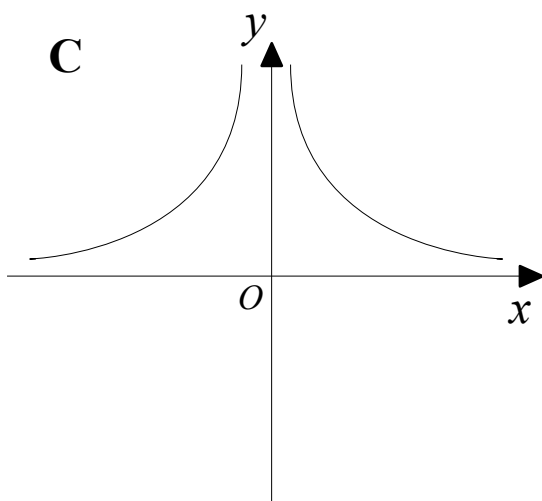
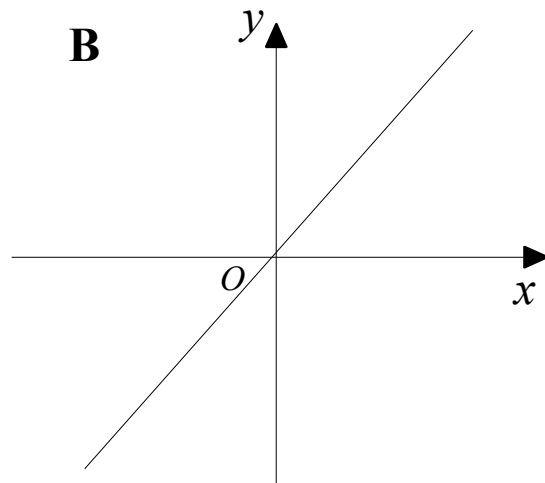
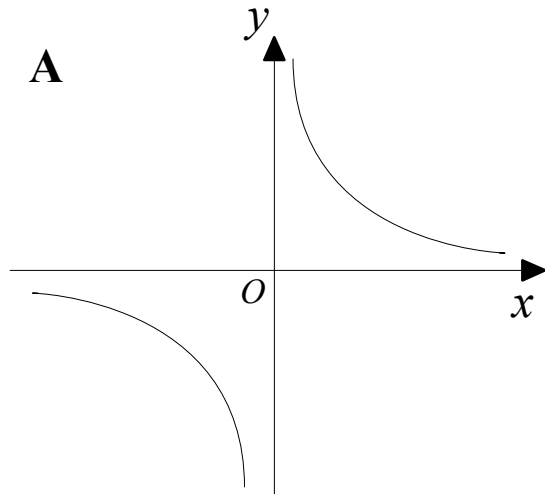
F is given by the formula: $F = \frac{36}{x^2}$

Find the Force when two magnets are 3 cm apart.

$F = \dots\dots\dots$ N

(Total for question 12 is 2 marks)

13 Here are four graphs.



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 directly proportional to x^2	
y is inversely proportional to x^2	

(Total for question 13 is 2 marks)