Name: _____

ASM Tuition Academy

Direct and Inverse Proportion

Instructions:

- Use **black** ink or ballpoint 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 you're 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 time.
- Try to answer every question.
- Check your answers if you have time at the end.

1. **A machine fills 2000 bottles in 4 hours.**
    Work out how many hours the machine would take to fill 2500 bottles.

    _____

    (Total for question 1 is 2 marks)

2. **It costs £0.70 to buy 5 bananas.**
    Work out how much it would cost to buy 8 bananas.

    _____

    (Total for question 2 is 2 marks)

3. **2 tins of beans and 3 tins of potatoes costs £2.76.**
    5 tins of beans cost £1.50.
    Work out how much one tin of potatoes costs.

    _____

    (Total for question 3 is 2 marks)

4. **There are 600 sheets in a pack of paper. 600 sheets of paper weight 2.4 kg.**
   Work out the weight of 60 sheets of paper.

   _____

   (Total for question 4 is 2 marks)

5. **It takes 3 painters 6 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 4 machines 3 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 5 painters 9 days to complete a job.
Work out how many days it would take 3 painters to complete the same job.

(Total for question 7 is 2 marks)

8. It takes 7 machines 8 hours to produce 1400 LCDs
Work out how long it would take 6 machines to produce 1400LCDs.

_____

(Total for question 8 is 2 marks)

9. x is inversely proportional to y.
x is given by the formula: x = 1000/y
Find the value of x when y = 40

_____

(Total for question 9 is 2 marks)

10. y is directly proportional to x.
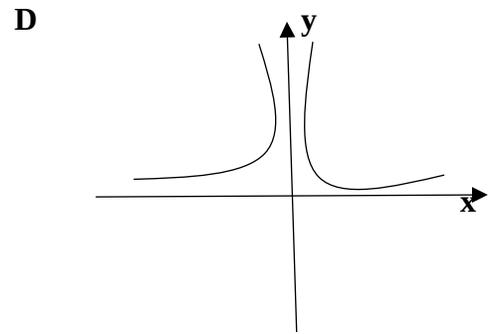
y is given by the formula: $y = 0.4x$

Find the value of y when x is 9

_____

(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 weighting 88 grams.
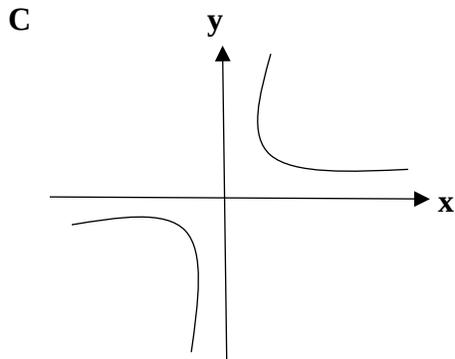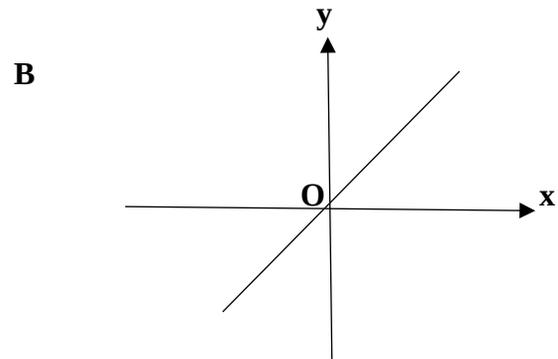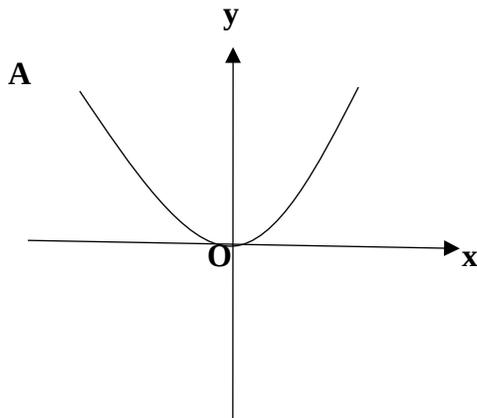
_____

(Total for question 11 is 2 marks)

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

F is given by the formula: $F = 36 / x^2$

Find the Force when two magnets are 5 cm apart.

_____

(Total for question 12 is 2 marks)

13. Here are 4 graphs.

A

B

C

D

Sketch each graph and match with a statement in the table below.

Proportionally Relationship	Graph Letter
y is directly proportional to x	
y is directly proportional to x^2	
y is inversely proportional to x	
y is inversely proportional to x^2	

(Total for question 14 is 2 marks)