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.

2 It costs £0.75 to buy 5 bananas.
   Work out how much it would cost to buy 7 bananas.
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.

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.
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.

8  It takes 5 machines 6 hours to produce 1000 DVDs
   Work out how long it would take 4 machines to produce 1000 DVDs.
9. \( x \) is inversely proportional to \( y \).
   
   \( x \) is given by the formula: \[ x = \frac{1000}{y} \]
   
   Find the value of \( x \) when \( y = 50 \)

\[ x = \ldots \]

(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 \( x = 6 \)

\[ y = \ldots \]

(Total for question 10 is 2 marks)
11  The weight of a piece of wire \((w\text{ grams})\) is directly proportional to its length \((l\text{ cm})\).

\[ w = 30l \]

Find the length of a wire weighing 75 grams.

\[ l = \ldots \text{cm} \]

(Total for question 11 is 2 marks)

12  The force, \(F\), between two magnets is inversely proportional to the square of the distance, \(x\text{ cm}\), between them.

\[ F = \frac{36}{x^2} \]

Find the Force when two magnets are 3 cm apart.

\[ F = \ldots \text{N} \]

(Total for question 12 is 2 marks)
13 Here are four graphs.

Match each graph with a statement in the table below.

<table>
<thead>
<tr>
<th>Proportionality relationship</th>
<th>Graph letter</th>
</tr>
</thead>
<tbody>
<tr>
<td>( y ) is directly proportional to ( x )</td>
<td></td>
</tr>
<tr>
<td>( y ) is inversely proportional to ( x )</td>
<td></td>
</tr>
<tr>
<td>( y ) is directly proportional to ( x^2 )</td>
<td></td>
</tr>
<tr>
<td>( y ) is inversely proportional to ( x^2 )</td>
<td></td>
</tr>
</tbody>
</table>

(Total for question 13 is 2 marks)