13+ Maths Paper

Sample Questions

Exam is 1 hour

No Calculator

Equipment required: Ruler, pen and pencil

Attempt all the questions. SHOW ALL YOUR WORKINGS

1 Work out:

(a) \(-13 + 5\)

(b) \(-5 \, -\, 6\)

(c) \(3 + \, 8\)

(d) \(-12 \, -\, 23\)

2 Work out

(a) \(8 \times \, -\, 7\)

(b) \(-28 \div \, 4\)

(c) \(3 \times \, -\, 5 \times \, -\, 10\)

(d) \((21 + \, -\, 6) \times \, -\, 2\)

3 Write down all the factors of 24.
4 Write 36 as a product of its prime factors.

5 Work out:
   (a) \(2^4\)
   (b) \(4^3\)

6 Simplify:
   (a) \(5x + 7x\)
   (b) \(8x + 3y + 9x - 3y\)
   (c) \(6p - 2q - 4p + q\)
   (d) \(m \times m \times m \times m\)
   (e) \(3wx \times 5yz\)
   (f) \(y^{12} \div y^4\)

7 Expand the bracket: \(3(4a - 7c)\)

8 Factorise: \(15x + 40\)

11 Work out the following, simplifying your answers where possible:
   (a) \(\frac{4}{5} + \frac{7}{15}\)
   (b) \(\frac{3}{4} \times \frac{7}{9}\)
8. What are these shapes?

9. What size is angle p?

10. Factorise: $15x + 40$

11. Work out the following, simplifying your answers where possible:

   (a) $\frac{4}{5} + \frac{7}{15}$
   
   (b) $\frac{3}{4} \times \frac{7}{9}$

12. 10 students were asked how many packets of crisps they ate during last week.

   2, 5, 7, 2, 4, 3, 4, 4, 0, 4,

   Calculate:

   (a) the mean,

   (b) the mode.

13. Solve the following equations

   (a) $5x - 4 = 26$
(b) \( x = 4 \)

(c) \( 3 \cdot (x + 7) = 45 \)


15. \[
\begin{array}{c}
\text{(a) Work out the size of angle } m. \text{ Give a reason for your answer.} \\
\text{(b) Work out the size of angle } n. \text{ Give a reason for your answer.}
\end{array}
\]
(a) Rotate **shape A** $90^\circ$ clockwise about the origin. Label the image P.

(b) Translate **shape A** by $\begin{pmatrix} 3 \\ -2 \end{pmatrix}$. Label the image Q.

(c) Describe fully the **single** transformation which maps shape A onto shape B.
Enlarge the triangle by scale factor 2.
Use point A as the centre of enlargement.
For the equation $y = 3x + 1$, complete the table of values, then draw the graph.

<table>
<thead>
<tr>
<th>$x$</th>
<th>-4</th>
<th>-3</th>
<th>-2</th>
<th>-1</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
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</thead>
<tbody>
<tr>
<td>$y$</td>
<td>-8</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td>7</td>
<td></td>
<td></td>
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</tbody>
</table>

END OF TEST