

# Year 7 Maths Summer 1

## Unit 10 - Co-ordinates

No	Question	Answer	Example
10.1	How do I plot co-ordinates?	Along the corridor then up the stairs, x then y	
10.2	How do I find the mid point of a line segment?	<ol style="list-style-type: none"> <li>1) Add the x co-ordinates and divide by 2</li> <li>2) Add the y co-ordinates and divide by 2</li> </ol>	Find the midpoint of (3,4) and (9,10) <ol style="list-style-type: none"> <li>1) <math>3+9=6, 6 \div 2= 3</math></li> <li>2) <math>4 + 10 = 14, 14 \div 2= 7</math></li> </ol> (3,7)
10.3	How do I find the end point given the mid point and an end point of a line segment?	<ol style="list-style-type: none"> <li>1) Find the difference in x and add it to the x co-ordinate of the midpoint</li> <li>2) Find the difference in y and add it the y co-ordinate of the mid point</li> </ol>	AB is a line segment, M is the midpoint of AB. A is (0,3) and M is (3,6). Find the point B. <ol style="list-style-type: none"> <li>1) <math>3-0= 3, 3+3= 6</math></li> <li>2) <math>6-3= 3, 6+3= 9</math></li> </ol> (6,9)
10.4	Exploring Horizontal and Vertical lines	<p><u>Lines parallel to the axes</u></p> <p>All the points on this line have a x coordinate of 10</p> <p>All the points on this line have a y coordinate of -2 eg (3, -2) (7, -2) (-2, -2) all lay on this line because the y coordinate is -2</p>	

## UNIT 12 - Transforming 2D Figures

No	Question	Answer	Example
12.1	Translation	<b>Translate</b> means to <b>move a shape</b> . The shape does not change <b>size</b> or <b>orientation</b> . Must include: $\begin{pmatrix} 2 \\ 5 \end{pmatrix}$ 2 right, 5 up • Vector $\begin{pmatrix} -2 \\ -5 \end{pmatrix}$ 2 left, 5 down	<p>This shape has been translated by <math>\begin{pmatrix} 7 \\ 0 \end{pmatrix}</math> 7 right, 0 up</p>
12.2	Rotation	The size does not change, but the <b>shape is turned around a point</b> . Use tracing paper  Must include: <ul style="list-style-type: none"> <li>• Centre of rotation</li> <li>• Direction</li> <li>• Degrees</li> </ul>	<p>This shape has been <b>rotated</b> from centre (0,0) <b>anti-clockwise 90°</b></p>
12.4	Reflection	The size does not change, but the shape is ' <b>flipped</b> ' like in a <b>mirror</b> . Must include: <ul style="list-style-type: none"> <li>• Line of symmetry</li> </ul>	<p>The shape has been reflected in the line <math>x=-1</math></p>
12.5	Enlargement	Must include: <ul style="list-style-type: none"> <li>• Centre of enlargement</li> <li>• Scale factor</li> </ul>	<p>This shape has been <b>enlarged</b> at centre of enlargement (x,y) with a scale factor of 2</p>
12.5.1	What is the scale factor?	What all the sides are multiplied by to get the enlargement	<p>e.g. Scale factor of 2 All dimensions get 2 times larger</p> <p>Scale factor of 0.5 All dimensions half</p>

### Unit 14 - Equivalent fractions

No	Question	Answer	Example
14.1	What is the numerator?	The top part of a fraction	numerator → $\frac{3}{4}$
14.2	What is the denominator?	The bottom part of a fraction	vinculum → $\frac{3}{4}$
14.3	What is the vinculum?	The division line in a fraction	denominator → $\frac{3}{4}$
14.4	How do you find an equivalent fraction?	$\times/\div$ the numerator AND denominator by the same number	$\frac{1}{2} \times 4 = \frac{4}{8}$
14.5	How do you simplify a fraction?	$\div$ the numerator AND denominator by their HCF	$\frac{3}{15} \div 3 = \frac{1}{5}$
14.6	How do you convert mixed numbers to improper (top-heavy) fractions?	Multiply the denominator of the fractional part by the whole number, and add the result to the numerator.	$2 \times 3 + 1 = 7$ $2\frac{1}{3} = \frac{7}{3}$
14.7	How do you convert improper fractions to mixed numbers?	<ol style="list-style-type: none"> <li>1. Divide the numerator by the denominator.</li> <li>2. Write down the whole number answer.</li> <li>3. Then write down any remainder above the denominator.</li> </ol>	$8 \div 5 = 1 \text{ r } 3$ $\frac{8}{5} = 1\frac{3}{5}$
14.8	How do you compare and order fractions?	Make the denominators the same	$\frac{2}{3} \quad \frac{3}{6} \quad \frac{7}{9}$ $\frac{12}{18} \quad \frac{9}{18} \quad \frac{7}{18}$

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### Unit 15 - Operations with fractions

No.	Question	Answer	Example
15.1	How do you multiply fractions?	<ol style="list-style-type: none"> <li>1. Multiply the numerators</li> <li>2. Multiply the denominators</li> <li>3. Simplify your answer if needed.</li> </ol>	$\frac{5}{6} \times \frac{3}{4} = \frac{5 \times 3}{6 \times 4} = \frac{15}{24} = \frac{5}{8}$ <p>Multiply numerators and denominators → Simplify.</p>
15.2	How do you divide fractions?	<ol style="list-style-type: none"> <li>1. <b>Keep</b> the first fraction the same.</li> <li>2. <b>Change</b> the division sign to a multiplication sign.</li> <li>3. <b>Flip</b> the second fraction.</li> <li>4. <b>Multiply</b> these fractions together (see Q15.1)</li> </ol>	$\frac{3}{4} \div \frac{1}{2}$ $\frac{3}{4} \times \frac{2}{1}$ <p>[Keep, Change, Flip]</p> $\frac{6}{4} = \frac{3}{2} = 1\frac{1}{2}$ <p>[Multiply and simplify]</p>
15.3	How do you add fractions?	<ol style="list-style-type: none"> <li>1. Find equivalent fractions with LCM as denominator</li> <li>2. Add the numerators together</li> <li>3. Keep the denominator the same.</li> </ol>	$\frac{5}{6} + \frac{1}{4}$ <p>[find equivalent fractions with LCM as denominator]</p> $= \frac{10}{12} + \frac{3}{12}$ <p>[Add numerators, leave denominator the same]</p> $= \frac{13}{12}$
15.4	How do you subtract fractions?	<ol style="list-style-type: none"> <li>1. Find equivalent fractions with LCM as denominator</li> <li>2. Subtract the numerators</li> <li>3. Keep the denominator the same,</li> </ol>	$\frac{5}{6} - \frac{1}{4}$ <p>[find equivalent fractions with LCM as denominator]</p> $= \frac{10}{12} - \frac{3}{12}$ <p>[subtract numerators, leave denominator the same]</p> $= \frac{7}{12}$