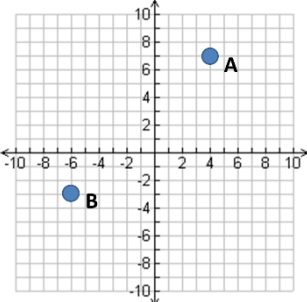
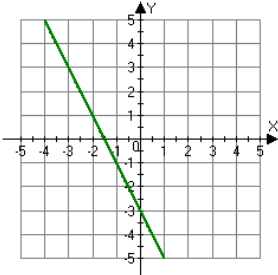
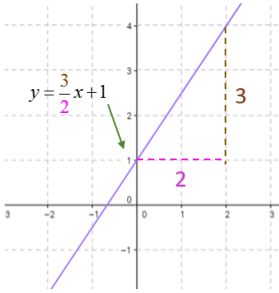
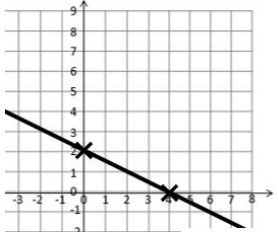
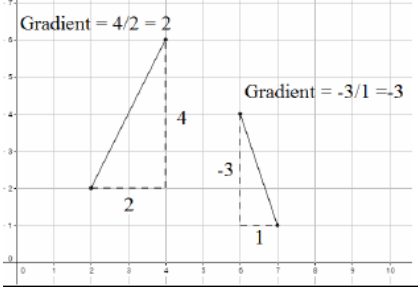
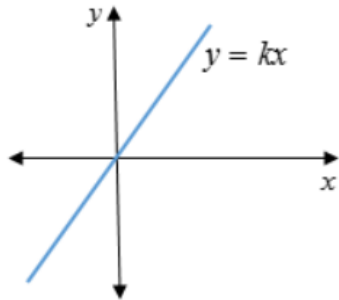


Year 8 Sets 3 and 4 Summer half Term 1

Topic/Skill	Definition/Tips	Example																
1. Coordinates	Written in pairs . The first term is the x-coordinate (movement across). The second term is the y-coordinate (movement up or down)	 <p style="text-align: right;">A: (4,7) B: (-6,-3)</p>																
2. Midpoint of a Line	<p>Method 1: add the x coordinates and divide by 2, add the y coordinates and divide by 2</p> <p>Method 2: Sketch the line and find the values half way between the two x and two y values.</p>	<p>Find the midpoint between (2,1) and (6,9)</p> $\frac{2+6}{2} = 4 \text{ and } \frac{1+9}{2} = 5$ <p>So, the midpoint is (4,5)</p>																
3. Linear Graph	<p>Straight line graph.</p> <p>The general equation of a linear graph is</p> $y = mx + c$ <p>where m is the gradient and c is the y-intercept.</p> <p>The equation of a linear graph can contain an x-term, a y-term and a number.</p>	<p>Example:</p>  <p style="text-align: right;">Other examples: $x = y$ $y = 4$ $x = -2$ $y = 2x - 7$ $y + x = 10$ $2y - 4x = 12$</p>																
4. Plotting Linear Graphs	<p>Method 1: Table of Values Construct a table of values to calculate coordinates.</p> <p>Method 2: Gradient-Intercept Method (use when the equation is in the form $y = mx + c$)</p> <ol style="list-style-type: none"> 1. Plots the y-intercept 2. Using the gradient, plot a second point. 3. Draw a line through the two points plotted. <p>Method 3: Cover-Up Method (use when the equation is in the form $ax + by = c$)</p> <ol style="list-style-type: none"> 1. Cover the x term and solve the resulting equation. Plot this on the x – axis. 2. Cover the y term and solve the resulting equation. Plot this on the y – axis. 3. Draw a line through the two points plotted. 	<table border="1" style="margin-bottom: 10px;"> <tr> <td style="background-color: #FFD700;">x</td> <td>-3</td> <td>-2</td> <td>-1</td> <td>0</td> <td>1</td> <td>2</td> <td>3</td> </tr> <tr> <td style="background-color: #FFD700;">y = x + 3</td> <td>0</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td>6</td> </tr> </table>   <p style="text-align: right;">$2x + 4y = 8$</p>	x	-3	-2	-1	0	1	2	3	y = x + 3	0	1	2	3	4	5	6
x	-3	-2	-1	0	1	2	3											
y = x + 3	0	1	2	3	4	5	6											

5. Gradient	<p>The gradient of a line is how steep it is.</p> <p>Gradient =</p> $\frac{\text{Change in } y}{\text{Change in } x} = \frac{\text{Rise}}{\text{Run}}$ <p>The gradient can be positive (sloping upwards) or negative (sloping downwards)</p>	
6. Direct Proportion	<p>If two quantities are in direct proportion, as one increases, the other increases by the same percentage.</p> <p>If y is directly proportional to x, this can be written as $y \propto x$</p> <p>An equation of the form $y = kx$ represents direct proportion, where k is the constant of proportionality.</p>	
7. Increase or Decrease by a Percentage	<p>Non-calculator: Find the percentage and add or subtract it from the original amount.</p> <p>Calculator: Find the percentage multiplier and multiply.</p>	<p><u>Increase 500 by 20% (Non Calc):</u> 10% of 500 = 50 so 20% of 500 = 100 500 + 100 = 600</p> <p><u>Decrease 800 by 17% (Calc):</u> 100% - 17% = 83% 83% ÷ 100 = 0.83 0.83 x 800 = 664</p>
8. Percentage Multiplier	<p>The number you multiply a quantity by to increase or decrease it by a percentage.</p>	<p>The multiplier for increasing by 12% is 1.12</p> <p>The multiplier for decreasing by 12% is 0.88</p> <p>The multiplier for increasing by 100% is 2.</p>
9. Percentage Change	$\frac{\text{Difference}}{\text{Original}} \times 100\%$	<p>A games console is bought for £200 and sold for £250.</p> <p>% change = $\frac{50}{200} \times 100 = 25\%$</p>