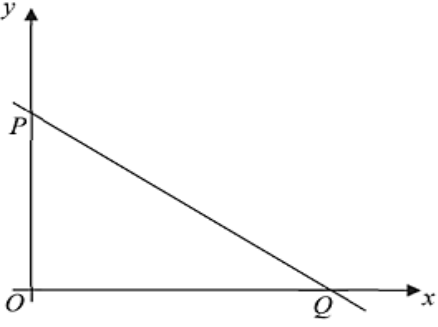
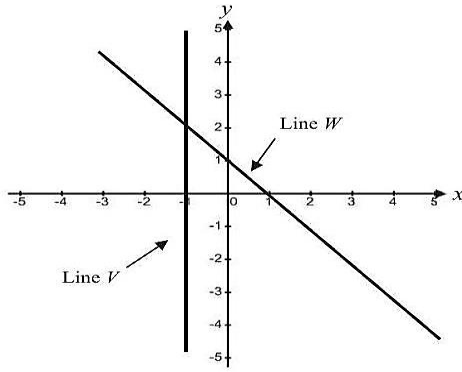


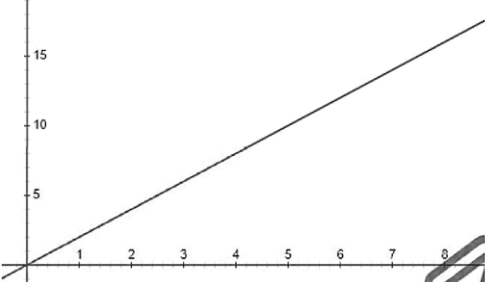
7 MUST KNOW QUESTIONS TO CONQUER LINEAR FUNCTIONS & GRAPHS

1	<p>The temperature of a waffle was -6° when it was taken from the freezer. The waffle was placed in an oven. The temperature rose at a constant rate for 10 minutes. At the end of 10 minutes, the temperature was 18°. Find</p> <p>(a) The temperature after 5 minutes, (b) The number of minutes it took to reach 0°C.</p>	<p>[2] [1]</p>
2	<p>The equation of a function is $y = -\frac{1}{3}x + 2$. Find</p> <p>(a) the value of y when $x = \frac{3}{4}$, (b) the value of x when $y = -1$.</p> <p>Hence, explain why $(7, -1)$ does not lie on the line.</p>	<p>[1] [2]</p>
3	<p>In the diagram below, the points A and B are $(0, -2)$ and $(6, 4)$ respectively.</p> <div style="text-align: center; margin: 10px 0;"> </div> <p>(a) Find the gradient of the line AB. (b) On the same diagram, draw the lines $y = -2$ and $x = 6$. (c) Point C is the point of intersection between the lines $y = -2$ and $x = 6$. Mark and label point C on the diagram. (d) Hence, calculate the area of triangle ABC.</p>	<p>[1] [2] [1] [1]</p>

<p>4</p>	<div style="text-align: center;">  </div> <p>The equation of the line $3x + y - 4 = 0$ cuts the y- and x- axes at P and Q respectively.</p> <p>(a) Write down the value of the y- intercept of the graph. [1] (b) What is the gradient of line PQ? [1] (c) Given point Q is $(q, 0)$, find the value of q. [1]</p>									
<p>5</p>	<p>Given the equation $y = 2x$,</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="padding: 5px;">x</td> <td style="padding: 5px;">0</td> <td style="padding: 5px;">4</td> <td style="padding: 5px;">8</td> </tr> <tr> <td style="padding: 5px;">y</td> <td style="padding: 5px;">0</td> <td style="padding: 5px;">a</td> <td style="padding: 5px;">16</td> </tr> </table> <p>(a) Find the value of a. [1] (b) Using a scale of 2 cm to represent 1 unit on the x-axis and 1 cm to represent 1 unit on the y-axis, draw the graph of $y = 2x$ for $0 \leq x \leq 8$. [2]</p>	x	0	4	8	y	0	a	16	
x	0	4	8							
y	0	a	16							
<p>6</p>	<p>The total ticket price, P, for admission to Jurong Bird Park for x adults and y children is given by $P = 35x + 23y$.</p> <p>(a) Find the total ticket price for two adults and four children. [1] (b) What does the coefficient of x and y represent? [1] (c) The total ticket price for x adults and three children is \$244. Find the value of x. [1]</p>									
<p>7</p>	<p>Write down the equation of the following graphs.</p> <div style="text-align: center;">  </div> <p>(a) Line V [1] (b) Line W [1]</p>									

Answer Key

1	<p>Solutions:</p> <p>(a) $18 - (-6) = 24^{\circ}\text{C}$ 10 minutes increase of 24°C 5 minutes increase of 12°C Final temperature $(-6) + 12 = 6^{\circ}\text{C}$</p> <p>(b) $0 - (-6) = 6^{\circ}\text{C}$ Time taken = $\frac{6}{24} \times 10 = 2\frac{1}{2}$</p> <p>Ans: (a) 6°C (b) $2\frac{1}{2}$</p>
2	<p>Solutions:</p> <p>(a) $y = -\frac{1}{3}\left(\frac{3}{4}\right) + 2 = 1\frac{3}{4}$ (b) $-1 = -\frac{1}{3}x + 2$ $x = 9$ When $y = -1, x = 9$ and not 7</p> <p>Ans: (a) $1\frac{3}{4}$ (b) $x = 9$</p>
3	<p>(a) <i>gradient</i> = (b) $\frac{6}{6} = 1$</p> <p>(c) (shown on b)</p> <p>(d) $\frac{1}{2} \times 6 \times 6 \text{ units}^2 = 18 \text{ units}^2$</p> <div style="text-align: right;"> </div> <p>Ans: (a) 1 (d) 18</p>
4	<p>Solutions:</p> <p>(a) <i>y - intercept</i> = 4</p> <p>(b) <i>equation of line:</i> $y = -3x + 4$ $m = -3$</p> <p>(c) $Q = (q, 0)$ Substituting $y = 0$ and $x = q$ $3(q) + 0 - 4 = 0$ $3q = 4$ $q = \frac{4}{3} = 1\frac{1}{3}$</p> <p>Ans: (a) 4 (b) -3 (c) $1\frac{1}{3}$</p>

5	Ans: (a) $a = 8$ (b) 
6	Solutions: (a) $P = 35(2) + 23(4)$ $P = \$162$ (a) $35x + 23(3) = 244$ $35x = 244 - 69$ $35x = 175$ $x = \$5$ Ans: (a) \$162 (b) The price of admission tickets for adults (x) & for children (y). (c) $x = \$5$
7	Ans: (a) $x = -1$ (b) $y = -x + 1$