

### Solving Simultaneous Equations Graphically Mark Scheme

<b>1</b>	Attempt to give coordinates of intercept as solutions	[1]												
	$(2,2)$ $x = 2$ $y = 2$	[1] Correct coordinates												
<b>2(a)</b>	<table border="1" style="margin: auto; border-collapse: collapse;"> <tr> <td style="padding: 5px;"><math>x</math></td> <td style="padding: 5px;">-1</td> <td style="padding: 5px;">0</td> <td style="padding: 5px;">1</td> <td style="padding: 5px;">2</td> <td style="padding: 5px;">3</td> </tr> <tr> <td style="padding: 5px;"><math>y</math></td> <td style="padding: 5px;">2</td> <td style="padding: 5px;">1</td> <td style="padding: 5px;">0</td> <td style="padding: 5px;">-1</td> <td style="padding: 5px;">-2</td> </tr> </table>	$x$	-1	0	1	2	3	$y$	2	1	0	-1	-2	
$x$	-1	0	1	2	3									
$y$	2	1	0	-1	-2									
	Table completed as shown above	[1]												
<b>2(b)</b>														
	Graph plotted correctly, shown above	[1]												
	Attempt to give coordinates of intercept as solutions	[1]												
	$(1,0)$ $x = 1$ $y = 0$	[1]												
<b>3(a)</b>	<table border="1" style="margin: auto; border-collapse: collapse;"> <tr> <td style="padding: 5px;"><math>x</math></td> <td style="padding: 5px;">-2</td> <td style="padding: 5px;">-1</td> <td style="padding: 5px;">0</td> <td style="padding: 5px;">1</td> <td style="padding: 5px;">2</td> </tr> <tr> <td style="padding: 5px;"><math>y</math></td> <td style="padding: 5px;">-0.15</td> <td style="padding: 5px;">0.1</td> <td style="padding: 5px;">0.35</td> <td style="padding: 5px;">0.6</td> <td style="padding: 5px;">0.85</td> </tr> </table>	$x$	-2	-1	0	1	2	$y$	-0.15	0.1	0.35	0.6	0.85	
$x$	-2	-1	0	1	2									
$y$	-0.15	0.1	0.35	0.6	0.85									
	Table plotted correctly as shown above.	[1]												

Turn over ►

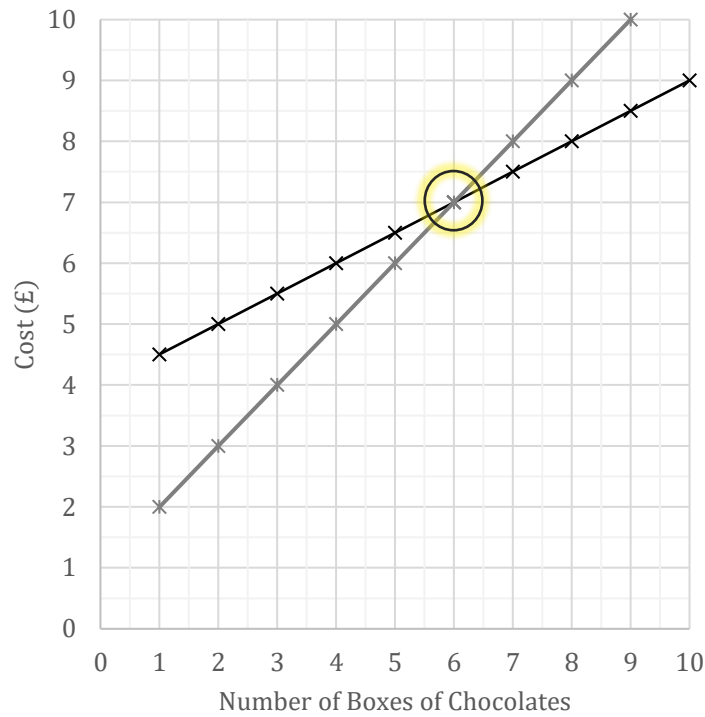
3(b)		
	Graph plotted correctly as shown above	[1]
	Attempt to give coordinates of intercept as solutions	[1]
	$(1, 0.6)$ $x = 1$ $y = 0.6$	[1]
4(a)		
	Graph plotted correctly as shown.	[1]
4(b)	Attempt to give coordinates of intercept as solutions	[1]
	$(-1, 1)$ $x = -1$ $y = 1$	[1]
4(c)	The two lines are parallel they both have the same gradient of 5.	[1] Any statement that indicates no intersection of the two lines.

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5 ChocZ cost =  $(0.5 \times \text{number of boxes}) + 4$   
 Sweets2Go cost =  $(1 \times \text{number of boxes}) + 1$  [1]

<b>Number of boxes</b>	1	2	3	4	5	6	7	8
<b>ChocZ (£)</b>	4.50	5	5.50	6	6.50	7	7.50	8
<b>Sweets2Go Cost (£)</b>	2	3	4	5	6	7	8	9

Using equations to find coordinates to plot for ChocZ and Sweets2Go. As shown in the table above. [2]



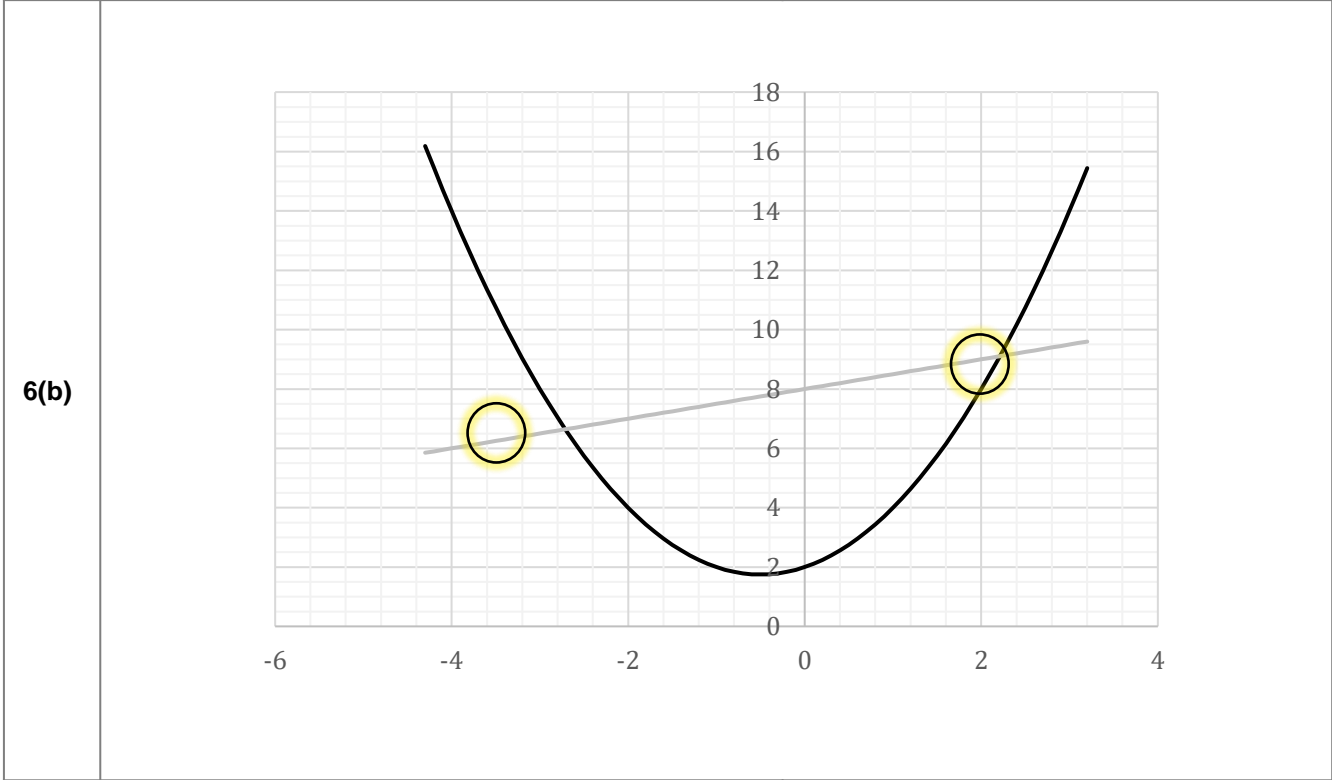
Correct lines plotted [2] 1 mark for each line

6<sup>th</sup> box has the same cost. 7<sup>th</sup> box will be cheapest. [1]

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<b>6(a)</b>	$x$	-4	-3	-2	-1	0	1	2	3
	$y$	6	6.5	7	7.5	8	8.5	9	9.5

Table completed as shown above [1]



Attempt to give coordinates of intercept as solutions [1]

Identifying two solutions available. [1]

<p>Solution 1: <math>(-2.6, 6.6)</math>  <math>x_1 = -2.6</math>  <math>y_1 = 6.6</math>          Solution 2: <math>(2.2, 9)</math>  <math>x_2 = 2.2</math>  <math>y_2 = 9</math></p>	<p>[1] Solution 1 correct          [1] Solution 2 correct</p>
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END