

## DRAWING GRAPHS

### Pearson Edexcel - Tuesday 19 May 2020 - Paper 1 (Non-Calculator) Foundation Tier

1.

22	B C D A	B2 (B1)	cao for two or three correct)	
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### Pearson Edexcel - Thursday 6 June 2019 - Paper 2 (Calculator) Foundation Tier

2.

21	Graph	B3  (B2)          (B1)	for a correct line between $x = -2$ and $x = 4$  for a correct straight line segment through at least 3 of $(-2, -7), (-1, -5), (0, -3), (1, -1), (2, 1), (3, 3), (4, 5)$  <b>or</b> for all of these points plotted but not joined  <b>OR</b> for a line drawn with a positive gradient through $(0, -3)$ <b>and</b> clear intention to use a gradient of 2, eg line through $(0, -3)$ going across 2 squares and up 4 squares )  for at least 2 correct points stated or plotted  <b>OR</b> for a line drawn with a positive gradient through $(0, -3)$  <b>OR</b> a line with gradient 2)	Ignore any incorrect points. Points need not be plotted for a correct line (segment) drawn  Table of values <table border="1"> <tr> <td>x</td> <td>-2</td> <td>-1</td> <td>0</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> <tr> <td>y</td> <td>-7</td> <td>-5</td> <td>-3</td> <td>-1</td> <td>1</td> <td>3</td> <td>5</td> </tr> </table>  Ignore any incorrect points Coordinates may be in a table or in working	x	-2	-1	0	1	2	3	4	y	-7	-5	-3	-1	1	3	5
x	-2	-1	0	1	2	3	4													
y	-7	-5	-3	-1	1	3	5													

### Pearson Edexcel - Thursday 24 May 2018 - Paper 1 (Non-Calculator) Foundation Tier

3.

25	Line drawn	B3  (B2)          (B1)	for a correct line between $x = -3$ and $x = 3$  for a correct straight-line segment through at least 3 of $(-3, 13), (-2, 9), (-1, 5), (0, 1), (1, -3), (2, -7), (3, -11)$  <b>or</b> for all of these points plotted but not joined  <b>or</b> for a line drawn with a negative gradient through $(0, 1)$ <b>and</b> clear intention to use a gradient of $-4$ , eg line through $(0, 1)$ and $(0.5, -1)$  for at least 2 correct points stated or plotted <b>or</b> for a line drawn with a negative gradient through $(0, 1)$ <b>or</b> a line with gradient $-4$ )	Ignore any incorrect points  Table of values <table border="1"> <tr> <td>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>y</td> <td>13</td> <td>9</td> <td>5</td> <td>1</td> <td>-3</td> <td>-7</td> <td>-11</td> </tr> </table>  Ignore any incorrect points coordinates may be in a table or in working	x	-3	-2	-1	0	1	2	3	y	13	9	5	1	-3	-7	-11
x	-3	-2	-1	0	1	2	3													
y	13	9	5	1	-3	-7	-11													

### Pearson Edexcel - Tuesday 12 June 2018 - Paper 3 (Calculator) Foundation Tier

4.

13	D, F, A	C2  (C1)	for all 3 correct  for 1 or 2 correct)	
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**Pearson Edexcel - Wednesday 8 November 2017 - Paper 3 (Calculator) Foundation Tier**

5.

13	(a)		$\begin{pmatrix} -2 & -1.5 & -1 \\ -0.5 & 0 & 0.5 \end{pmatrix}$	B2 [B1]	for a fully correct table for 2 or 3 correct entries]
	(b)		Correct line	M1  A1	for correctly plotting at least 5 of their points (provided B1 scored in part (a)) or for a straight line with gradient 0.5 or for a straight line through (0,-1) with a positive gradient for a correct line between $x = -2$ and $x = 3$
	(c)		2.6	B1	for answer in the range 2.5 to 2.7 or ft a single straight line with positive gradient

**OCR – Tuesday 03 November 2020- Morning - Paper 1 (Calculator) Foundation Tier**

6.

22	(a)		3	1		Accept (0, 3)
	(b)		Any correct reason e.g. (-2, 7) and (4, -5) [gradient=] $\frac{-5-7}{4--2} = \frac{-12}{6} [= -2]$	1		Points used must be on the line
	(c)		$y = -2x + 3$ oe	1	FT $y = -2x + \text{their } a$	
	(d)		No because $y = -97$ when $x = 50$ oe or No because $x = 53$ when $y = -103$ oe or No because $-103 \neq -97$ oe or No because $50 \neq 53$ oe	2	M1 for $[y =] -2 \times 50 + 3$ soi by $[y =] -97$ or $-103 = -2x + 3$ soi by $[x =] 53$	FT Award M1 for substitution seen into $y = -2x + \text{their } c$

**OCR Thursday 05 November 2020- Morning (Non-Calculator) Foundation Tier**

7.

14	(a)	(i)	$x = 3$ sketched correctly with 3 indicated on x-axis as x – intercept	2	M1 for a vertical line or a dotted vertical line passing through 3	Condone good freehand
14	(a)	(ii)	$y = x^2 + 1$ sketched correctly with 1 indicated as y-intercept	2	M1 for correct shape or y-intercept at 1 but not $y = 1$	Condone good freehand
14	(b)		It should not touch the axes oe  It should also have a curve in the 3 <sup>rd</sup> quadrant oe	1  1		Accept responses on the graph

OCR November 09 November 2020- Morning (Calculator) Foundation Tier

8.

7			(-2, 4)	3	<p><b>B1</b> for [a length =] 6 soi</p> <p><b>M1</b> for square or partial square anchored on (4, -2) and fitting entirely on the grid or two or three plots only that define a square anchored on (4, -2)</p> <p>or attempt <math>\begin{pmatrix} 4 \\ -2 \end{pmatrix} \pm \begin{pmatrix} 6 \\ 6 \end{pmatrix}</math></p> <p>If 0 scored, <b>SC1</b> for answer (-3, 5) or (-1, 3) or (0, 2) or (1, 1) or (2, 0) or (3, -1) or (5, -3)</p>	<p>e.g. line from A to (-2, -2) or (4, 4)</p> <p>At least two connected sides A suitable square side 6 anchored on (4, -2) scores <b>B1M1</b> Square need not be drawn</p> <p>some working to be seen for "attempt" e.g. 4 - 6 and -2 + 6</p>
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9.

13	a		Straight line from (0, 0) with positive gradient	2	<p><b>B1</b> for straight line with positive gradient or a series of crosses in a straight line that would pass through (0, 0)</p>	<p>Intercept within 1 mm of (0, 0) ("centre of line" inside circle of overlay) For 1 or 2 marks, intended straight Ignore scale on axes At least three crosses</p>
	b	i	36	3	<p><b>M2</b> for <math>432 \div 120 \times 10</math> oe or <b>M1</b> for <math>432 \div 120</math> soi 3.6 or <math>120 \div 10</math> soi 12</p>	<p>e.g. <math>432 \div 12</math></p> <p><math>120+120+120+60 = 420</math> oe</p>
		ii	1640	3	<p><b>B1</b> for [2 kg =] 2000 seen</p> <p><b>M1</b> for <math>100 \times \frac{\text{their}36}{10}</math> or <math>10 \times \text{their} 36</math></p>	<p><b>B1</b> may be awarded for the conversion even if not used in method May be <math>10 \times \text{their} 36</math> correctly evaluated or 360 seen</p>

10.

3	a	i	(4, 9)	1		
	a	ii	(-2, -3)	1		
	b		Point plotted at (7, -2)	1		
	c		$y = 2x + 4$ final answer	2	<b>B1</b> for $2x + 4$ or $y = 2x +/- c c \neq 1$	

**OCR Thursday 07 November 2019- Morning (Non-Calculator) Foundation Tier**

**11.**

13	(a)	(i)	$y = 2$ sketched correctly with 2 indicated on y-axis as y-intercept	2	M1 for a horizontal line	Condone good freehand
13	(a)	(ii)	$y = x + 1$ sketched correctly with 1 indicated as y-intercept	2	M1 for any straight line with positive gradient or for y- intercept at 1	Condone good freehand
13	(a)	(iii)	y-value where they cross has to be 2 oe	1		Isw extra statements. Accept eg (2, 3) is not on $y = 2$ as the y coordinate is 3 they cross at (1, 2) they cross when $x = 1$  See AG
13	(b)		Should go through (0, 0) oe  Should be a curve oe  No numbers on axis/axes oe  It is symmetrical oe	2	B1 for each to a max of 2	If more than two comments, mark the best two  See AG

**OCR Tuesday 21 May 2019 – Morning (Calculator) Foundation Tier**

**12.**

17	(a)		10	1		
	(b)		Correct continuous ruled line from $x = 0$ to $x = 4$	2		Tolerance 2 mm by eye B1 for 2 points correctly plotted FT their table
	(c)		$y = -3x + 11$ oe	3		B2 for $-3x + 11$ or $y = mx + 11$ ( $m \neq -3$ or 0, $m$ does not need to be numeric) or $y = -3x + c$ , ( $c$ can be 0, $c$ does not need to be numeric)  OR  M1 for $\frac{11-1}{0-4}$ oe  OR  B1 for $mx + 11$ , (where $m \neq -3$ or 0, $m$ does not need to be numeric) or $-3x + c$ (where $c \neq 11$ , $c$ can be 0, $c$ does not need to be numeric).

**OCR Tuesday 11 June 2019 – Morning (Calculator) Foundation Tier**

**13.**

7	a		(2, 3)	1		
	b		Correct line	1		Condone freehand or broken line, mark intention Line to be at least 2 cm long slide overlay to judge length If multiple lines and none chosen, mark the worst

14.

19	a	Correct answer based on angle or area/arc length	1	<p>The angle [for black]</p> <ul style="list-style-type: none"> <li>• is too small oe or</li> <li>• is less than a fifth oe or</li> <li>• should be 72 oe</li> </ul> <p>The area/arc length [for black]</p> <ul style="list-style-type: none"> <li>• is too small oe or</li> <li>• is less than a fifth oe</li> </ul>	<p>Accept 26 to 30 for "the angle"</p> <p>Accept "not equal to" for "too small" or "less than"</p> <p>See appendix</p>
	b	Any comment recognising limitations in range of the vertical scale	1		<p>EG It does not start at zero or It starts at 113</p> <p>See appendix</p>

15.

24		$y = 6x + 2$ oe final answer	4	<p>B3 for <math>6x + 2</math> final answer or <math>y = 6x + 2</math> oe but spoiled to final answer</p> <p>OR</p> <p>B2 for <math>y = 6x + k</math> oe <math>0 &lt; k &lt; 7</math> or for <math>y = mx + 2, m &gt; 0</math> and <math>m \neq 6</math></p> <p>or</p> <p>B1 for gradient or <math>m = 6</math> stated or for <math>y = 6x</math> or for <math>[y =] 6x + k</math> <math>k \neq 0</math> or 7 oe or for <math>mx + 2, m &gt; 0</math> and <math>m \neq 6</math></p> <p>B0 for <math>y = 6x + 7</math> (as given)</p>	<p>Accept <math>y - 26 = 6(x - 4)</math> as equivalent</p> <p>Do not allow other letters for <math>x</math></p> <p>Alternative methods</p> <p>M1 for <math>6 \times 4 + 7</math> soi 31</p> <p>M1 for <i>their</i> <math>31 - 26</math> soi 5</p> <p>M1 for <math>7 - \text{their } 5</math></p> <p>OR</p> <p>M1 for <math>[\pm]6 \times 4</math> soi 24 or <math>-24</math></p> <p>M1 for <math>26 - \text{their } 24</math> soi 2</p> <p>M1 for <math>6x + \text{their } 2</math></p>
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**OCR Tuesday 6 November 2018 – Morning (Calculator) Foundation Tier**

16.

11	(a)	(2, 4)	1		
	(b)	Q plotted at (-1, 2)	1		

**OCR Thursday 8 November 2018 – Morning (Non-Calculator) Foundation Tier**

17.

5	(a)	(i)	28	1		Allow $\pm 0.50$
		(ii)	95	1		Allow $\pm 1$
		(iii)	72	3	<p>Allow <math>\pm 2</math></p> <p>B1 for 1kg costs <math>\text{£}0.40</math> soi</p> <p>M1 <i>their</i> <math>0.4 \times 180</math></p> <p>or <i>their</i> cost <math>\times \frac{180}{\text{their equivalent weight}}</math></p> <p>or</p> <p>M1 for finding costs of weights that sum to 180 kg</p> <p>M1 for addition of these costs</p>	<p>e.g. 10kg costs <math>\text{£}4</math></p> <p>e.g. <math>4 \times \frac{180}{10}</math></p> <p>Note: award M2 for e.g. cost of 60 kg <math>\times</math> 3 attempted</p>
	(b)		one valid reason	1	Such as 'the vertical scale is not linear'	e.g. vertical scale is wrong vertical scale does not start from 0

18.

10	(a)	(i)	$x = 3$	1		
		(ii)	$y = x$	1		Condone $y = x \pm 0$
	(b)		Correct sketch of the graph of $y = x^2$ .	1		U shaped graph, approximately symmetrical going through the origin

19.

20	(a)		Correctly completes graph	2	B1 for 2 or 3 correct plots or for 4 plots at correct height	Use overlay mark in 60% zoom For 2 marks, condone points not joined
	(b)		He is correct oe with 60 and 150 shown [= 2 : 5]	2	M1 for $13 + 20 + 27$ oe or $45 + 47 + 58$ oe	
	(c)		Correct overall comment	1	i.e. increasing oe	isw extra statements
			Correct seasonal comment	1	e.g. [Sales were] weakest in 1st quarter [Sales were] strongest in 4 <sup>th</sup> quarter	See AG isw extra statements
	(d)		The trend in his sales will continue [at a similar rate] oe	1		Accept any correct relevant comment referring to general trend or 4 <sup>th</sup> quarter trend isw extra statements See AG

**OCR Monday 12 November 2018 – Morning (Calculator) Foundation Tier**

20.

19	(a)		$[y = ] 3$ or $(0, 3)$	1		Condone missing brackets
	(b)	(i)	$\frac{1}{2}$ or 0.5	2	M1 for suitable triangle on line with height and base marked with correct length or equivalent fraction to $\frac{1}{2}$ or 2 right, up 1 oe or B1 for answer $\frac{x}{2}$ only	(4 right, up 2 etc.) Accept $\frac{1}{2}x$ or $0.5x$
		(ii)	No with fully correct supporting evidence	3	M2 for $200 \times 0.5 + 1$ oe or B1 for 200, 100 or 101	Working must be shown for M2 For M2 accept 200 right up 100 [so] $100 + 1$ or $\frac{101}{200} \neq \frac{1}{2}$ or $0.505 \neq 0.5$ For B1 accept 200 right up 100 or $\frac{101}{200}$ or 0.505 or $\frac{100}{200}$ -seen

**OCR Thursday 7 June 2018 – Morning (Non Calculator) Foundation Tier**

21.

16	a		$(a, a - b)$	2	B1 for one correct coordinate	Condone eg 1a
	b		$a = 8$ $b = 3$	2 2	M1 for $2a = 16$ soi M1 for $2a - b = 13$ soi If 0 scored SC1 for $a = (8,0)$ or $b = (0,3)$	Eg their values of a and b correct for $2a - b = 13$

**OCR Tuesday 12 June 2018– Morning (Calculator) Foundation Tier**

22.

4	(a)	(i)	(4, 3)	1		
		(ii)	(-2, 3) plotted	1		Centre of mark within overlay around point
	(b)		$y = 3$	1		Accept any alternative form: EG $y - 3 = 0$ , $3 - y = 0$ , $-y = -3$ even $2y = 6$

**OCR Thursday 2 November 2017– Morning (Calculator) Foundation Tier**

23.

21	(a)		[Line] does not go through (0, 0)	1		Accept origin, O
	(b)		85	2	M1 for $\frac{68}{20}$ soi by 3.4	

**Pearson Edexcel –Sample Papers - Paper 2 (Calculator) Foundation Tier**

24.

12	(a)		graph	C1	introduce a scale for the y axis
				C1	plots at least 2 points correctly
				C1	fully correct and complete graph
	(b)		15 miles (supported)	M1	reads off graph eg 20 km = 12-13 miles or 15 miles = 24 km or uses table
				C1	states 15 miles (24 km) with appropriate evidence

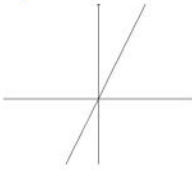
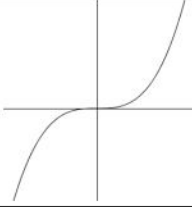
OCR Wednesday 8 November 2017– Morning (Calculator) Foundation Tier

25.

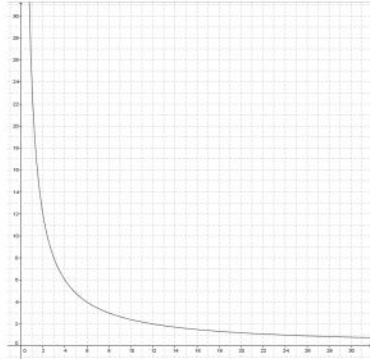
11	(a)		4 points plotted and a ruled line joining	2	B1 for 3 points correctly plotted	Line at least between (0, 100) and (150, 25) Use overlay as guide. ½ square accuracy
	(b)	(i)	198 to 202	1	Do not FT their line	
		(ii)	Battery usage remains the same or Battery can be used right to 0% or Trend or pattern continues	1	Accept For every 50 km it uses 25%	
	(c)	(i)	$-\frac{1}{2}$ oe or $-[0].5$	1		Ignore units
		(ii)	100	1	Accept 0, 100	
	(d)		$-\frac{1}{2}d + 100$	1	FT their (c)(i)d + their (c)(ii)	Accept any letter for d (except c)
	(e)	(i)	-5	2	FT their (d) if linear in d. B1 for correct substitution of 210	Expect $-\frac{1}{2} \times 210 + 100$ Accept any letter for d (except c)
		(ii)	Impossible [as battery cannot have negative charge] oe	1	FT their (i) only if their equation gives negative outcome	

OCR Sample Question Paper 1 – Morning/Afternoon (Calculator) Foundation Tier

26.

13	(a)	(i)	Any straight line through the origin e.g. 	2 1 A01.1 1 A02.3b	B1 for a straight line	
		(ii)		2 1 A01.1 1 A02.3b	B1 for a cubic with two turning points	
	(b)	(i)	At least one point plotted correctly	1 1 A02.3b		



	(ii)		<b>3</b> 1 AO2.3b 1 AO3.1b 1 AO3.2	<b>B2</b> for at least 5 points correctly plotted OR <b>B1</b> for at least 3 points correctly plotted  AND <b>B1</b> for <u>curve</u> drawn through <i>their</i> points
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**AQA Monday 8 June 2020 – Morning (Calculator) Foundation Tier**

27.

Q	Answer	Mark	Comments
<b>16(a)</b>	Correct ruled straight line through (0, 0) and (20, 72)	B2	$\pm \frac{1}{2}$ square  B1 any one correct coordinate plotted or seen in a table of values with $1 \leq x \leq 20$ eg (1, 3.6) (2, 7.2) (3, 10.8) (4, 14.4) (5, 18) (10, 36) (15, 54) or (20, 72)
	<b>Additional Guidance</b>		
	Ignore lines beyond (0, 0) to (20, 72)		
	Ignore incorrect points plotted		
	To award B1, points plotted cannot be implied by an incorrect line, there must be a coordinate plotted or values in a table		
Correct ruled line but too short		B1	

Q	Answer	Mark	Comments
<b>16(b)</b>	14	B1ft	ft from their graph in part (a)  $\pm \frac{1}{2}$ square
	<b>Additional Guidance</b>		
	Answer must be a whole number		

Q	Answer	Mark	Comments
16(c)	<b>Alternative method 1</b> (using formula and conversion factor)		
	30 × 3.6 or 108 or 30 ÷ 1.61 or [18.6, 18.64] or 3.6 ÷ 1.61 or [2.2, 2.24] or 1.61 ÷ 3.6 or [0.4, 0.45]	M1	oe working in metres eg 30 × 60 × 60 or 108 000
	their 108 ÷ 1.61 or their [18.6, 18.64] × 3.6 or their [2.2, 2.24] × 30 or 30 ÷ their [0.4, 0.45]	M1dep	oe working in metres eg 108 000 ÷ 1610
	[67, 67.1]	A1	[67, 67.1]
	<b>Alternative method 2</b> (using graph and conversion factor)		
	Uses their graph to convert 30 m/s to km/h or 108	M1	eg 3 × (their y at x = 10) or (their y at x = 10) + (their y at x = 20) $\pm \frac{1}{2}$ square
	their 108 ÷ 1.61	M1dep	
	[67, 67.1]	A1ft	ft from their graph in part (a) and M2
	<b>Additional Guidance</b>		
	Alt 2 For A1ft answers may be rounded to the nearest integer or rounded to 1 decimal place eg their graph used correctly gives 114 km/h 114 ÷ 1.61 [70.8, 71]		M1 M1dep A1ft

AQA Thursday 8 November 2018 – Morning (Calculator) Foundation Tier

	The graph only goes from $x = -4$ to $x = 4$ and the graph shown is $y = -x$ up to 0	B2	oe B1 one correct criticism SC1 correct graph drawn from $x = -5$ to $x = 5$
<b>Additional Guidance</b>			
<b>14</b>	For one criticism, accept eg it doesn't reach 5 / 5 not plotted / it doesn't start at -5 only starts at -4 / only reaches 4 it should go to (5, 5) / (5, 5) not plotted / (-5, -5) not plotted it isn't long enough		B1
	Do not accept eg it isn't finished (-5, 5) not plotted		B0
	For the other criticism, accept eg it's the wrong line up to 0 it's the wrong equation for the first part $y$ does not equal $x$ at the beginning it should go through (-4, -4) / (-5, -5) not plotted / (-1, -1) should be plotted it should be / it's not a straight line it shouldn't be a V-shape worked out the negative numbers wrong / no negative $y$ -coordinates he should have plotted ... <b>and</b> correct table of values		B1
	Do not accept eg it isn't correctly drawn / it isn't $y = x$ / the points are plotted wrong it should be symmetrical / it shouldn't be symmetrical one line should go below the $x$ -axis		B0
	<b>NB</b> (-5, -5) should be plotted is valid for either (but not both) criticisms		B1
	Both criticisms may be in one answer space		
	Ignore irrelevant statements but any additional statements must be correct eg It goes from -4 to 5 not -5 to 5		B0

AQA Thursday 7 June 2018 – Morning (Calculator) Foundation Tier

29.

<b>15(a)</b>	Any two of $(-2, -9)$ , $(-1, -7)$ , $(0, -5)$ , $(1, -3)$ , $(2, -1)$ , $(3, 1)$ , $(4, 3)$ , $(5, 5)$	M1	gives at least two correct pairs of coordinates, may be in a table implied by points plotted $\pm \frac{1}{2}$ small square
	At least two correct points plotted or at least two of their points plotted correctly	M1dep	implied by correct line which does not have to extend from $x = -2$ to $x = 5$ $\pm \frac{1}{2}$ small square
	Correct line from $(-2, -9)$ to $(5, 5)$	A1	$\pm \frac{1}{2}$ small square ignore ends of line outside $[-2, 5]$
	<b>Additional Guidance</b>		
	ignore extra points that are incorrect		

<b>15(b)</b>	3	B1ft	correct or ft the intersection of their graph with the given graph $\pm \frac{1}{2}$ small square
	<b>Additional Guidance</b>		
	Answer 3 with or without correct graph		B1
	Answer $(3, 1)$		B0
	Answer $(x =) 3, y = 1$		B1
If their graph intersects the given graph at more than one point they need to give the correct $x$ -coordinate of each point of intersection		B1ft	

AQA Thursday 2 November 2017 – Morning (Non-Calculator) Foundation Tier

30.

<b>14</b>	Identifies or plots any two correct points	M1	<p>points with integer values are</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="padding: 2px 5px;"><math>x</math></td> <td style="padding: 2px 5px;">-3</td> <td style="padding: 2px 5px;">-2</td> <td style="padding: 2px 5px;">-1</td> <td style="padding: 2px 5px;">0</td> <td style="padding: 2px 5px;">1</td> <td style="padding: 2px 5px;">2</td> <td style="padding: 2px 5px;">3</td> </tr> <tr> <td style="padding: 2px 5px;"><math>y</math></td> <td style="padding: 2px 5px;">5</td> <td style="padding: 2px 5px;">4</td> <td style="padding: 2px 5px;">3</td> <td style="padding: 2px 5px;">2</td> <td style="padding: 2px 5px;">1</td> <td style="padding: 2px 5px;">0</td> <td style="padding: 2px 5px;">-1</td> </tr> </table> <p>may be in a list ignore incorrect plots</p>	$x$	-3	-2	-1	0	1	2	3	$y$	5	4	3	2	1	0	-1
	$x$	-3	-2	-1	0	1	2	3											
	$y$	5	4	3	2	1	0	-1											
	Correct straight ruled line from $(-3, 5)$ to $(3, -1)$	A1	ignore incorrect plots if correct line drawn																
<b>Additional Guidance</b>																			
Correct line, but not extending from $(-3, 5)$ to $(3, -1)$		M1A0																	
Two lines, one correct and one incorrect		M1A0																	

AQA Thursday 25 May 2017– Morning (Non-Calculator) Foundation Tier

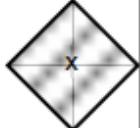
31.

<b>16(a)</b>	$P(0, 3)$ $Q(2, 0)$	B2	B1 for each
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<b>16(b)</b>	at least two correct points correctly plotted or their two points, from (a), correctly plotted or if they restart with a table of values, at least two of their points correctly plotted	M1	may be from a table of values may be implied by their line tolerance $\pm 2\text{mm}$ ignore incorrect points
	Straight, ruled line from $(-3, 7.5)$ to $(3, -1.5)$	A1	
	<b>Additional Guidance</b>		
	If their points in (a) give a line which cannot be drawn from $x = -3$ to $x = 3$ allow the line drawn to be between the possible integer values of $x$		
	If they restart with a table of values and achieve M1, the only way to achieve M1A1 is for the line to be the correct one i.e. $y = 3 - 1.5x$		
No tolerance on length of line, it must reach at least from $-3$ to $3$ on $x$ -axis			

AQA Thursday 8 June 2017– Morning (Calculator) Foundation Tier

<b>26(a)</b>	<table border="1"> <tr> <td><math>x</math></td> <td>-2</td> <td>-1</td> <td>0</td> <td>1</td> <td>2</td> <td>3</td> </tr> <tr> <td><math>y</math></td> <td>4</td> <td>0</td> <td>-2</td> <td>-2</td> <td>0</td> <td>4</td> </tr> </table>	$x$	-2	-1	0	1	2	3	$y$	4	0	-2	-2	0	4	B2	B1 1 or 2 values correct
	$x$	-2	-1	0	1	2	3										
	$y$	4	0	-2	-2	0	4										
<b>Additional Guidance</b>																	

<b>26(b)</b>	5 or 6 points plotted correctly	M1	Correct or ft their table in (a) Tolerance of $\pm 1$ small square Points can be implied by graph passing through them
	Correct smooth parabolic curve and $y$ -coordinate of minimum point in the range $-2.5 \leq y \leq -2.1$	A1	Tolerance of $\pm 1$ small square for the six <b>correct</b> points from the table No further tolerance for the minimum
	<b>Additional Guidance</b>		
	Tolerance of $\pm 1$ small square means it is on the edges of or within the shaded area		
			
	Ignore extra points plotted		
	If their table in (a) has points that are beyond the grid these points will not be able to be plotted correctly		
	Ignore any curve drawn for $x < -2$ or $x > 3$		
Curve passing through all correct points within tolerance		M1A1	
Ruled straight lines		A0	

AQA Sample Paper 3– Morning (Calculator) Foundation Tier

33.

<b>10(a)</b>	(10, 20.8), (20, 21.6), (30, 22.4) and (40, 23.2) plotted	B1	
	Straight line through their points	B1ft	ft line of best fit following plotting error
<b>10(b)</b>	[19.9, 20.1]	B1	
<b>10(c)</b>	<b>Alternative method 1</b>		
	21.2 or 22.8	M1	
	1.6	A1ft	ft their graph
	<b>Alternative method 2</b>		
	(20.8 + 21.6) ÷ 2 or 21.2 or (22.4 + 23.2) ÷ 2 or 22.8	M1	
	1.6	A1	
	<b>Alternative method 3</b>		
	23.2 – 21.6 or 22.4 – 20.8 or 21.6 – 20 or (22.4 – 21.6) × 2 or (23.2 – 22.4) × 2	M1	Finds the difference for any two masses 20 kg apart or Doubles the difference for any two masses 10 kg apart
	1.6	A1	