EQUATION OF A LINE

Pearson Edexcel – Tuesday 19 May 2020 - Paper 1 (Non-Calculator) Higher Tier

1.

15	$y=-\frac{1}{3}x+8$	M1	for a method for finding the gradient of L_2 eg use of $-\frac{1}{m}$ **or** $-\frac{1}{3}$	
		M1	(dep) for substitution of (9, 5) into $y="-\frac{1}{3}"x+c$	
		A1	for $y=-\frac{1}{3}x+8$ oe	$y-5=-\frac{1}{3}(x-9)$ gets M2A1

Pearson Edexcel - Thursday 6 June 2019 - Paper 2 (Calculator) Higher Tier

2.

16	$y=-\frac{3}{4}x-\frac{11}{4}$	M1	for identifying gradient of $\frac{4}{3}$	Ignore constant term
		M1	for beginning a method to find the gradient of the perpendicular line eg $\frac{4}{3}\times m=-1$ **or** identifies gradient of perpendicular line as $-\frac{3}{4}$	Can ft providing gradient is clearly stated
		A1	for $y=-\frac{3}{4}x-\frac{11}{4}$ or any equivalent equation	$4y+3x=-11$ $y+5=-\frac{3}{4}(x-3)$

Pearson Edexcel - Thursday 7 June 2018 - Paper 2 (Calculator) Higher Tier

3.

3	$y=3x-6$	M1	for a correct method to find the gradient of the line, or $m=3$ **OR** identifies −6 as the intercept in words or in a partial equation **OR** $y-b=m(x-a)$ where $m\neq 3$ and (a, b) is a correct coordinate	Just ringing –6 is insufficient
		M1	for $y=3x+c$ **or** (L=) $3x-6$ **or** $y=$"3"$x-6$ **OR** $y-y_1=3(x-x_1)$ **or** $y-b=$"3"$(x-a)$ where (a, b) is a correct coordinate	Award of this mark implies the first M1 c must be seen either as a letter or a number
		A1	accept $y=3x+-6$ oe	

Pearson Edexcel - Thursday 2 November 2017 - Paper 1 (Non-Calculator) Higher Tier

4.

19		$y=2x+36$	P1	starts process, eg by rearranging to find gradient, eg $y=6-\frac{x}{2}$ **or** $\frac{-1}{2}$ **or** positions of B and E
			P1	complete process to find position of A **or** uses $\frac{-1}{m}$ to find the gradient of **M**
			P1	complete process to find equation of **M**
			A1	$y=2x+36$ oe

Pearson Edexcel - Specimen Papers Set 1 - Paper 1 (Non-Calculator) Higher Tier

5.

23		$y=-\frac{1}{2}x+\frac{3}{2}$	P1 for a process to find the gradient of the line AB P1 (dep) for a process to find the gradient of a perpendicular line eg use of $-1/m$ P1 (dep on P2) for substitution of $x=5$, $y=-1$ A1 equation stated oe

Pearson Edexcel - Specimen Papers Set 1 - Paper 2 (Calculator) Higher Tier

6.

23		$y=-\frac{4}{3}x+\frac{25}{3}$ oe	M1 for method to find gradient of tangent, eg. $-1\div\frac{3}{4}=-\frac{4}{3}$
			M1 (dep) for method to find y-intercept using $y=$"$-\frac{4}{3}$"$x+c$ A1 $y=-\frac{4}{3}x+\frac{25}{3}$ oe

Pearson Edexcel - Specimen Papers Set 1 - Paper 3 (Calculator) Higher Tier

7.

3		$y=2x+1$	M1 for a method to find the gradient M1 for a method to find the c in $y=mx+c$ A1 $y=2x+1$

Pearson Edexcel - Sample Paper 1 - (Non-Calculator) Higher Tier

8.

25		$3y-4x=11$	P1	process to start to solve problem eg. draw a diagram, find gradient of AB (0.5)
			P1	process to use gradients eg. find gradient of BC (-2)
			P1	Process to find y coordinate of C (9)
			P1	Process to find equation of AC
			A1	

Pearson Edexcel - Friday 6 November 2015 - Paper 2 (Calculator) Higher Tier

9.

17			$y=3x-5$	3	M1 for recognition that the gradient of $\mathbf{L_2}$ is 3 M1 for substitution of $x=3$ and $y=4$ into $y=$ "m"$x+c$ A1 $y=3x-5$ oe (SC B2 for '$3x-5$ ' or $L_2=3x-5$)

Pearson Edexcel - Monday 8 June 2015 - Paper 2 (Calculator) Higher Tier

10.

17		Gradient of N = 3 Gradient of perpendicular to line N = $-\frac{1}{3}$	$y=-\frac{1}{3}x+1$	3	M1 for complete method to find gradient of line N or for drawing a perpendicular line M1 for method to find the gradient of a perpendicular line A1 $y=-\frac{1}{3}x+1$ oe

Pearson Edexcel - Monday 9 June 2014 - Paper 1 (Non-Calculator) Higher Tier

11.

19			$y=\frac{1}{2}x-5$	3	M1 for method to find gradient of L_1 e.g $\frac{6-3}{6-0}\left(=\frac{1}{2}\right)$ M1 for $y=$ "$\frac{1}{2}$"$x+c$ or $y=mx-5$ (c, m do not have to be numerical, or correct numerical values) or for $(L=)\frac{1}{2}x-5$ A1 $y=\frac{1}{2}x-5$ oe

Pearson Edexcel - Monday 6 June 2011 - Paper 3 (Non-Calculator) Higher Tier

12.

21	(a)	e.g. $-\frac{2}{4}$	$-\frac{1}{2}$	2	M1 for attempt to find $\frac{\text{(difference in } y\text{)}}{\text{(difference in } x\text{)}}$ A1 for $-\frac{1}{2}$ oe SC B1 for $\frac{1}{2}$ or –2 seen with or without working or sight of $y=-\frac{1}{2}x+2$ or $y=-\frac{1}{2}x$ or $-\frac{1}{2}x$
	(b)	$2=-\frac{1}{2}\times 6+c$ $2+3=c$ **Alternative** $y-2=$ "$-\frac{1}{2}$" $(x-6)$ $y-2=-\frac{1}{2}x+3$	$y=-\frac{1}{2}x+5$	2	M1 for $y=$ '$-\frac{1}{2}$'$x+c$ or $y=mx+5$ A1 cao SC B1 for $-\frac{1}{2}x+5$

Pearson Edexcel - Monday 7 June 2010 - Paper 3 (Non-Calculator) Higher Tier

13.

23		Gradient = $\frac{10--2}{3-0}$	$y=4x-2$	3	M1 for gradient = $\frac{10--2}{3-0}$ oe or $(y=)\,4x+c$ or a right angle triangle with sides 12 and 3 shown M1 for (**y** =) m**x** - 2, $m \neq 0$ or $10=3m+c$ or - 2 = **c** (but not '**y**-intercept = –2') A1 for $y=4x-2$ oe [the **y** must be included in the equation]

OCR GSCE – Tuesday 3 November 2020 – Paper 4 (Calculator) Higher Tier

14.

7	**(a)**		Any correct reason e.g. two points identified e.g (−2,−6) and (2,4) or a triangle drawn on the graph and [gradient =] e.g $\frac{4--6}{2--2}$ (could be marked on graph) = $\frac{10}{4}$=($\frac{5}{2}$ or 2.5) oe	**1**		reason has to be fully correct condone triangle with base 1 and height 2.5 providing it is clear alternative 1: e.g. −6 = *m*(−2) + −1 leading to *m* = (−6 + 1) ÷ −2 = $\frac{-5}{-2}$=($\frac{5}{2}$ or 2.5) alternative 2 : −6 = *m*(−2) + *c* 4= *m*(2) + *c* subtract −10 = *m*(−4) $\frac{-10}{-4}$=($\frac{5}{2}$ or 2.5) oe
	(b)		*y* = 2.5*x* – 1	**2**	**B1** for *y* = 2.5*x* + *c* (*c* ≠ − 1)	condone $\frac{5}{2}$ for 2.5

OCR GSCE – Tuesday 11 June 2019 – Paper 6 (Calculator) Higher Tier

15.

8			*y* = 6*x* + 2 oe final answer	**4**	**B3** for 6*x* + 2 as final answer or for *y* = 6*x* + 2 oe seen and then spoiled as final answer OR **B2** for *y* = 6*x* + *k* oe 0 < *k* < 7 or for *y* = *mx* + 2, *m* > 0 and *m* ≠ 6 or **B1** for gradient or *m* = 6 stated or for *y* = 6*x* or for [*y* =] 6*x* + *k* *k* ≠ 0 or 7 oe or for *mx* + 2, *m* > 0 and *m* ≠ 6 **B0** for *y* = 6*x* + 7 (as given)	Accept *y* – 26 = 6(*x* – 4) as equivalent Do not allow other letters for *x* <u>Alternative methods</u> **M1** for 6 × 4 + 7 soi 31 **M1** for *their* 31 – 26 soi 5 **M1** for 7 - *their* 5 OR **M1** for [±]6 × 4 soi 24 or –24 **M1** for 26 – *their* 24 soi 2 **M1** for 6*x* + *their* 2

OCR GSCE – Tuesday 6 November 2018 – Paper 4 (Calculator) Higher Tier

16.

18			*y* = $-\frac{1}{2}x$ – 1 oe	**5**	**B2** for gradient 2 or **M1** for $\frac{\pm(9--1)}{\pm(5-0)}$ or gradient of −2 AND **M1** for '*m*' = $\frac{-1}{their\ 2}$ **B1** for $-\frac{1}{2}x$ – 1 , *y* = $-\frac{1}{2}x$ + *c* or *y* = *mx* – 1 or *y* = (*their m*)*x* + *c* as answer	

OCR GSCE – Thursday 7 June 2018 – Paper 5 (Non - Calculator) Higher Tier

17.

18	**(a)**		$y = -\frac{1}{4}x + 6$	**3**	Mark final answer **B2** for correct equation **seen** or **M1** for [grad=] $-\frac{1}{4}$ **oe soi** **M1** for answer $y = kx + 6$ **oe** ($k \neq 0$)	For 3 marks accept $y = -0.25x + 6$ Does not have to be in form $y = mx + c$ e.g. $y - 6 = -\frac{1}{4}(x - 0)$
	(b)		(6, 19) and (–2, –13)	**6**	**M2** for $x^2 - 4x - 12$ [= 0] or **M1** for $x^2 - 17 = 4x - 5$ **or better** **M2** for $(x - 6)(x + 2)$ [= 0] **oe** or **M1** for $(x + a)(x + b)$) [= 0] where $a + b = -4$ or $ab = -12$ **B1** for either pair of coordinates correct or for $x = 6$ and $x = -2$	FT *their* 3 term quadratic equation or expression. Accept correct use of quad formula or complete the square M2 if completely correct, M1 if one error in formula or complete the square See AG for alt method

OCR GSCE – Tuesday 12 June 2018 – Paper 6 (Calculator) Higher Tier

18.

5	**(a)**		$y = 0.75x + 2$ oe	**3**	**B2** for $y = 0.75x$ [+ c] or answer $0.75x + 2$ OR **M1** for attempt at $\frac{\text{change in y}}{\text{change in x}}$ soi by $\frac{\pm(5-2)}{\pm(4-0)}$ or ±0.75 and **B1** for $y = kx + 2$ with $k \neq 0$	ISW after a correct equation if attempting rearrangement Accept oe throughout eg **B2** for $4y = 3x$ Examples: **M1B1** for $y = -0.75x + 2$ **M1B0** for 0.75, 0.75x, −0.75, $-0.75x$ If gradient inverted: **M0B1** for $y = 1.3x + 2$ **M0B0** for $1.3x + 2$, $y = 1.3x$ Condone poorly written ¾x unless clearly 3 over 4x.
	(b)		3 nfww	**3**	**M2** for $12 = 16 - 4k + 8$ or better OR **M1** for $12 = -4^2 + -4 \times k + 8$ or sign errors in $12 = 16 - 4k + 8$ or better or $k = \frac{y - x^2 - 8}{x}$	Condone -4 not in brackets but $12 = -4^2 + k - 4 + 8$ with no times sign or dot between k and -4 scores **0** unless subsequently clarified.

AQA GSCE – Thursday 8 June 2020 – Paper 3 (Calculator) Higher Tier

19.

2	$y = \frac{1}{2}x$	B1	

	(c)		**Using symmetry:** Q is (0, 8)	**1**	**dep** mark is always dependent on 3 marks being achieved	For first mark in all methods, condone [Q =] 8 or [QA =] 8-2 or 6, seen in working or on diagram.
			Midpoint, M, of AQ is at (0, 5)	**1**	Accept implied symmetry	eg 8 – 5 = 3 and 5 – 2 = 3 so B is in the middle of A and Q May see "midpoint" or any other letter for M
			MB is perpendicular to QA	**1**		
			So isosceles/Diann is correct	**1dep**		
			OR	**OR**		
			Using Pythagoras: Q is (0, 8)	**1**	**Using gradients, vectors or descriptions of translations** **1** for Q is (0, 8)	Condone poor notation, such as missing vector brackets or fraction lines in vectors if intention is clear.
			$AB^2 = 4^2 + 3^2$ oe or AB = 5 nfww or $QB^2 = 4^2 + (their\ 8 - 5)^2$ or QB = 5 nfww	**1**	**1** for gradients/vectors/descriptions of translations for both AB **and** QB (must be seen together in part (c): eg	
			AB = 5 and QB = 5 or $AB^2 = 25$ and $QB^2 = 25$	**1**	gradients: AB = 3/4 **and** QB = -3/4 (may be implied from the equations of the two lines)	eg gradient AB = ¾ **and** gradient QB = -3/4 scores a max of 1 1 0 0
			AB = QB or "two sides are equal" oe so isosceles/Diann is correct	**1dep**	descriptions: AB is 4 along (treat as in positive sense) and 3 up **and** QB is 4 along and 3 down oe	eg gradient AB = ¾ **and** gradient QB = -3/4, so triangle is isosceles also scores a max of 1 1 0 0
			OR	**OR**	**To score more than 2 marks, the approach needs to be developed to justify isosceles, such as by switching to the 3rd and 4th marks of the Pythagoras or trig methods.**	
			Using trig: Q is (0, 8)	**1**		Warnings: dimensions of triangle shown as (8 – 2), 4, 4 and isosceles stated is B1 only; blank answer space but BQ drawn on diagram is **0** not **NR.**
			tan BAQ = 4/3 [=53.1]	**1**		
			tan BQA = 4/3 [= 53.1]	**1**		
			BAQ = BQA or "two angles are equal" oe so isosceles/Diann is correct	**1dep**		
					9	

AQA GSCE – Thursday 6 June 2019 – Paper 2 (Calculator) Higher Tier

20.

15	$y = -\frac{3}{2}x + 3$	B4	oe eg $2y + 3x = 6$ or $y = -1.5x + 3$ B3 $-\frac{3}{2}x + 3$ or gradient $= -\frac{3}{2}$ stated or equation of line with gradient $-\frac{3}{2}$ B2 scales on both axes identified correctly or scale on one axis identified correctly and correct gradient of L for their two scales seen B1 scale on one axis identified correctly or correct gradient of L for their two scales seen SC2 $y = -\frac{3}{4}x + 3$ oe or $y = \frac{3}{2}x + 3$ oe SC1 $-\frac{3}{4}x + 3$ or gradient $= -\frac{3}{4}$ stated or equation of line with gradient $-\frac{3}{4}$
	Additional Guidance		
	Examples of scale on y-axis identified correctly include intersection of $y = x - 1$ with y-axis labelled –1 or intersection of line L with y-axis labelled 3 or equation of line with y-intercept 3		
	Examples of scale on x-axis identified correctly include intersection of $y = x - 1$ with x-axis labelled 1 or intersection of line L with x-axis labelled 2		

21.

12	**Alternative method 1**		
	$4 \times 5 + c = 23$	M1	oe $20 + c = 23$
	$c = 3$	A1	implied by (0, 3) or 3 shown as y-axis intercept
	$y = 4x + 3$	A1	SC1 $y = 4x + c$ $c \neq 3$
	Alternative method 2		
	$y - 23 = 4(x - 5)$	M1	oe
	$y - 23 = 4x - 20$	M1dep	
	$y = 4x + 3$	A1	SC1 $y = 4x + c$ $c \neq 3$
	Additional Guidance		
	If 3 is clearly linked to c in $y = mx + c$ condone M1A1		
	$4x + 3$ on answer line, $y = 4x + 3$ seen in working		M1A1A1
	$4x + 3$ on answer line, $y = 4x + 3$ not seen in working		M1A1A0
	$m = 4$, $c = 3$ on answer line, $y = 4x + 3$ seen in working		M1A1A1
	$m = 4$, $c = 3$		M1A1A0
	$y = mx + 3$		M1A1A0
	$23 = 4 \times 5 + 3$ embedded value for c		M1A0A0
	$4x + c$ on answer line with $c \neq 3$		M0A0A0

AQA GSCE – Tuesday 6 November 2018 – Paper 1 (Non - Calculator) Higher Tier

23.

25	**Alternative method 1**		
	$a(-3)^2 + b(-3) + c = 0$ or $a(3)^2 + b(3) + c = 0$	M1	oe
	any two of $(-)6b = 0$, $c = 18$ and $9a + 18 = 0$	M1dep	oe
	$y = 18 - 2x^2$	A1	oe equation
	Alternative method 2		
	$y = 18 - 2x^2$	B3	oe equation B2 correct equation missing $y =$ eg $18 - 2x^2$ B1 equation of a quadratic curve that passes through (–3, 0) or (3, 0) or (0, 18) condone missing $y =$ eg $(y =)\ 18 - x^2$ or $(y =)\ (3 + x)(3 - x)$ or $(y =)\ x^2 - 2x - 3$ or $(y =)\ (x + 3)(x - 3)$
	Additional Guidance		
	Correct equations include $y = 2(3 + x)(3 - x)$ $y = -2(x + 3)(x - 3)$ $y = (6 + 2x)(3 - x)$ $y = (3 + x)(6 - 2x)$		
	For B3, B2 or B1 ignore incorrect expansion after correct equation or expression seen		

AQA GSCE – Monday 12 November 2018 – Paper 3 (Calculator) Higher Tier

24.

20	**Alternative method 1**		
	$2(-x-1)^2-5$	M1	oe Replacing x with $-x$
	$2(x^2+x+x+1)-5$ or $2x^2+4x+2-5$ or $2x^2+4x-3$	M1dep	oe expansion
	$y=2x^2+4x-3$	A1	
	Alternative method 2		
	$2(x^2-x-x+1)-5$ or $2x^2-4x+2-5$ or $2x^2-4x-3$	M1	oe expansion Multiplying out original expression
	$2(-x)^2-4(-x)-3$ or $2x^2+4x-3$	M1dep	oe Replacing x with $-x$
	$y=2x^2+4x-3$	A1	
	Additional Guidance		
	Using symmetry in y axis, $y=2(x+1)^2-5 \rightarrow y=2x^2+4x-3$		M1M1A1

AQA GSCE – Monday 24 May 2018 – Paper 1 (Non - Calculator) Higher Tier

25.

29(a)	**Alternative method 1**		
	$(x+3)^2 - 1$	M1	
	$x^2 + 3x + 3x + 9 - 1$ or $x^2 + 6x + 8$	M1	oe
	$b = 6$ and $c = 8$	A1	SC1 $b = 6$ or $c = 8$
	Alternative method 2		
	$(x-3)^2 + b(x-3) + c = x^2 - 1$	M1	
	$x^2 - 6x + 9 + bx - 3b + c = x^2 - 1$	M1	
	$b = 6$ and $c = 8$	A1	SC1 $b = 6$ or $c = 8$
	Alternative method 3		
	$(x+3+1)(x+3-1)$ or $(x--4)(x--2)$ or $(x+4)(x+2)$	M1	difference of two squares from the original roots
	$x^2 + 4x + 2x + 8$ or $x^2 + 6x + 8$	M1	
	$b = 6$ and $c = 8$	A1	SC1 $b = 6$ or $c = 8$
	Additional Guidance		
	Working out the roots of the original curve or the translated curve is not enough for M1 in alt 3		

29(b)	$y = 1 - x^2$ or $y = -x^2 + 1$	B1	oe equation
	Additional Guidance		
	$-y = x^2 - 1$	B1	
	$y = -(x^2 - 1)$	B1	
	$y = -(x-1)(x+1)$	B1	
	$y = 1 - (-x)^2$	B1	
	($y = 1 - x^2$ in working with answer) $1 - x^2$	B0	
	$y = (-x)^2 + 1$	B0	
	$f(x) = 1 - x^2$	B0	

AQA GSCE – Thursday 7 June 2018 – Paper 2 (Calculator) Higher Tier

26.

26	**Alternative method 1**		
	$4x^2 + 5x + 3 = x + 2$	M1	
	$4x^2 + 5x - x + 3 - 2 (= 0)$ or $4x^2 + 4x + 1 (= 0)$	M1dep	oe collection of terms eg $4x^2 + 5x - x = 2 - 3$ or $4x^2 + 4x = -1$
	$(2x + 1)(2x + 1) (= 0)$ or $4\left(x + \frac{1}{2}\right)^2 (= 0)$ or $\frac{-4 \pm \sqrt{4^2 - 4 \times 4 \times 1}}{2 \times 4}$ or $b^2 - 4ac = 4^2 - 4 \times 4 \times 1$ or D(iscriminant) = $4^2 - 4 \times 4 \times 1$	A1	oe eg $\left(x + \frac{1}{2}\right)^2 (= 0)$ allow $b^2 - 4ac = 16 - 16$ or D(iscriminant) = 16 – 16
	$(x =) -\frac{1}{2}$ with no other solutions with M2A1 seen or states that as brackets are the same there is only one solution with M2A1 seen or $b^2 - 4ac = 4^2 - 4 \times 4 \times 1 = 0$ and states there is only one solution with M2A1 seen or D(iscriminant) = $4^2 - 4 \times 4 \times 1 = 0$ and states there is only one solution with M2A1 seen	A1	oe allow $b^2 - 4ac = 16 - 16 = 0$ and states there is only one solution with M2A1seen allow D(iscriminant) = 16 – 16 = 0 and states there is only one solution with M2A1seen

Mark scheme continues on the next page

26 cont	**Alternative method 2**		
	$y = 4(y-2)^2 + 5(y-2) + 3$	M1	oe
	$4y^2 - 16y + 16 + 5y - 10 + 3 - y$ (= 0) or $4y^2 - 12y + 9$ (= 0)	M1dep	oe expansion and collection of terms eg $4y^2 - 16y + 5y - y = 10 - 16 - 3$ or $4y^2 - 12y = -9$
	$(2y-3)(2y-3)$ (= 0) or $4\left(y - \frac{3}{2}\right)^2$ (= 0) or $\frac{--12 \pm \sqrt{(-12)^2 - 4\times4\times9}}{2\times4}$ or $b^2 - 4ac = (-12)^2 - 4 \times 4 \times 9$ or D(iscriminant) $= (-12)^2 - 4 \times 4 \times 9$	A1	oe eg $\left(y - \frac{3}{2}\right)^2$ (= 0) allow $b^2 - 4ac = 144 - 144$ or allow D(iscriminant) = 144 – 144
	$(y =) \frac{3}{2}$ with no other solutions with M2A1 seen or states that as brackets are the same there is only one solution with M2A1 seen or $b^2 - 4ac = (-12)^2 - 4 \times 4 \times 9 = 0$ and states there is only one solution with M2A1 seen or D(iscriminant) $= (-12)^2 - 4 \times 4 \times 9 = 0$ and states there is only one solution with M2A1 seen	A1	oe allow $b^2 - 4ac = 144 - 144 = 0$ and states there is only one solution with M2A1seen allow D(iscriminant) = 144 – 144 = 0 and states there is only one solution with M2A1seen

Additional guidance continues on the next page

26 cont	**Additional Guidance**	
	Alt 1 $(x=)-\frac{1}{2}$ with no working or Alt 2 $(y=)\frac{3}{2}$ with no working	M0M0A0A0
	Alt 1 Ignore any y-coordinate whether correct $\left(=\frac{3}{2}\right)$ or incorrect	
	Alt 2 Ignore any x-coordinate whether correct $\left(=-\frac{1}{2}\right)$ or incorrect	
	T & I leading to $x=-\frac{1}{2}$	M0M0A0A0
	To award M1dep you must see a correct expression with terms collected or a correct equation with terms collected	
	$4x^2+5x+3=x+2$ $4x^2+1=-4x$ (all x terms not collected on one side)	M1 M0dep
	$4x^2+5x+3=x+2$ $4x^2+4x+3=2$ (all constant terms not collected on one side)	M1 M0dep
	If using the discriminant to award A marks, you must see either b^2-4ac or D(iscriminant) $b^2-4ac=4^2-4\times4\times1$ can be implied eg $b+\sqrt{b^2-4ac}$ and $4+\sqrt{4^2-4\times4\times1}$ scores first A1 For final A1 must see $b^2-4ac=4^2-4\times4\times1=0$ and statement that there is only one solution with M2A1 seen	

AQA GSCE – Tuesday 12 June 2018 – Paper 3 (Calculator) Higher Tier

27.

19	(8, 0)	B1	
	Additional Guidance		

AQA GSCE – Wednesday 8 November 2017 – Paper 3 (Calculator) Higher Tier

28.

4	$y=-5$	B1	
	Additional Guidance		

AQA GSCE – Wednesday 25 May 2017 – Paper 1 (Non - Calculator) Higher Tier

29.

27	$\frac{4-0}{-1-0}$ or -4	M1	oe
	$-1 \div$ their -4 or $\frac{1}{4}$	M1	oe their -4 must be their gradient of OP
	$y-4 = \text{their}\frac{1}{4}(x--1)$ or $4 = \text{their}\frac{1}{4}(-1) + c$	M1dep	oe dep on second M1 oe $c = 4.25$
	$y = \frac{1}{4}x + \frac{17}{4}$ or $y = 0.25x + 4.25$	A1	oe eg $y = 0.25x + 4\frac{1}{4}$ Accept $y = \frac{x+17}{4}$
	Additional Guidance		
	An answer of $4y = x + 17$, with or without the correct answer seen		M1M1M1A0
	For A1, allow a mixture of fractions, decimals and mixed numbers		
	$y - y_1 = m(x - x_1)$ stated, followed by $y - 4 = \frac{1}{4}(x--1)$ oe		M1M1M1

AQA GSCE – Sample Paper 2 (Calculator) Higher Tier

30.

4	$y = 5x + 2$	B1	

AQA GSCE – Sample Paper 3 (Calculator) Higher Tier

31.

27	$y = -x^2 + 5x - 2$	B1	