COORDINATES

Pearson Edexcel – Thursday 4 June 2020 - Paper 2 (Calculator) Higher Tier

1.

17	$-12, -7$	B1	cao	

Pearson Edexcel - Tuesday 21 May 2019 - Paper 1 (Non-Calculator) Higher Tier

2.

19	(i)	$3, 8$	M1	for $a = 3$, may be seen in working or as part of an expression, eg $(x-3)^2 - 9$	9 does not have to be seen for this mark
			A1	for $a = 3, b = 8$	
	(ii)	$3, -8$	B1	for 3, –8 **or** ft (i)	

Pearson Edexcel - Tuesday 11 June 2019 - Paper 3 (Calculator) Higher Tier

3.

15	$(-7, -1)$	M1	for a method which shows understanding of the type of transformation eg reflection in the y axis or translation $\binom{0}{-3}$ or "(0 units right and) 3 units down" **or** for x coordinate as -7 **or** y coordinate as -1	"Reflection" or "Translation" alone is insufficient. Note that the -7 or the -1 may appear in the working space, not necessarily in the final answer.
		A1	for $(-7, -1)$	

Pearson Edexcel - Tuesday 6 November 2018 - Paper 1 (Non-Calculator) Higher Tier

4.

17	$(2, -9)$	P1	substitutes $x = 0, y = -5$ into $y = x^2 + ax + b$ $(b = -5)$ **or** substitutes $x = 5, y = 0$ into $y = x^2 + ax + b$ $(0 = 25 + 5a + b)$ **or** starts process to find other intercept, eg writes $y = (x-5)(x-k)$	
		P1	for complete process to find two intercepts, eg. substitutes the second point into $y = x^2 + ax + b$ and solves to find a $(= -4)$ and b $(= -5)$ **or** substitutes $x = 0, y = -5$ into $y = (x-5)(x-k)$ and solves to find k $(= -1)$	
		P1	(dep on P2) for factorising or completing the square of $x^2 + "-4" x + "-5"$ and identifying the x-coordinate of the turning point **or** for a complete process to find the x-coordinate of the turning point, eg $(5 + "-1")/2$	
		A1	cao	x-coordinate of 2 with no or incorrect working gets NO marks

Pearson Edexcel - Thursday 8 November 2018 - Paper 2 (Calculator) Higher Tier

5.

14	curve	C1	sketch of graph which starts above x-axis for negative x, and makes an increasing exponential rise into positive x	Condone graph "touching" the x axis. Do not award from a graph for positive x only.
	(0,1) labelled	C1	for showing a label of $(0,1)$ on the y axis	Do not award if a point is given for crossing the x-axis. Accept the coordinates shown as a label of "1" written on the y axis at the intersection.

Pearson Edexcel - Thursday 8 November 2018 - Paper 2 (Calculator) Higher Tier

6.

18	$\left(\dfrac{-16}{5}, \dfrac{48}{5}\right)$	P1	for a method to find gradient of L_1 eg $\dfrac{6-2}{4-12}$ $(=-½)$ or states L_2 as $y=-3x$	Ignore sketches.
		P1	(dep on P1) for a method to find equation of L_1 eg subs into $y=$ "$-½$"$x+c$ OR states L_1 as $y=$ "$-½$"$x+8$	
		P1	(dep on P2) complete method to equate both lines eg "$-½$"$x+8=-3x$	
		A1	oe	Accept equivalents eg $(-3.2, 9.6)$

Pearson Edexcel - Monday 12 November 2018 - Paper 3 (Calculator) Higher Tier

7.

20	$(-3.5, 1)$	M1	for a complete method to show the transformations	Image at $(-4,1)$, $(-3,1)$ and $(-3.5, -2)$
		A1	cao	

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

8.

6	$(22, 20)$	P1	for process to find width or height of diagram eg $38-6 (=32)$ **or** $36-7 (=29)$	Figures may be shown on the diagram
		P1	for process to find length of side of square eg "32" $\div 4 (=8)$ **or** process to find half width of diagram eg "32" $\div 2 (=16)$	
		P1	for process to find x coordinate eg $6+2 \times$ "8" $(=22)$ **or** $6+$ "16" $(=22)$ **or** $(6+38)\div 2 (=22)$	If $(6+38)\div 2$ leads to an answer other than 22, award P2 only
		P1	for process to find y coordinate eg $36-2 \times$ "8" $(=20)$ **or** $36-$ "16" $(=20)$ **or** $7+$ "8" $+$ "29" $-3 \times$ "8" $(=20)$	
		A1	cao SC: award 4 marks for $(20, 22)$	Award for P3 for $(22, y)$ or $(x, 20)$ or $x=22$ or $y=20$

Pearson Edexcel - Tuesday 13 June 2017 - Paper 3 (Calculator) Higher Tier

9.

20	(a)		$(0,1)$	B1	$(0,1)$
	(b)		Circle radius 4 Centre $(3,0)$ and $(-1,0)$ and $(7,0)$ labelled	M1	For centre $(3,0)$ implied by drawing or label or a circle of radius 4 or intersections on the x-axis at -1 or 7 implied by drawing or labels
				M1	for 2 of centre $(3,0)$ implied by drawing or label intersections on the x-axis at -1 and 7 implied by drawing or label circle drawn with radius 4
				A1	for a fully correct answer

Pearson Edexcel - Specimen Papers Set 2 - Paper 3 (Calculator) Higher Tier

10.

23		$2(x+4)^2 + 3$	P1	process to find a, eg $2x^2 + 16x + 35 = 2(x^2 + \ldots)$ or $a = 2$
			P1	for $2((x+4)^2 + \ldots))$ or $b = 4$
			A1	for $2(x+4)^2 + 3$ or $a = 2$, $b = 4$, $c = 3$
		$(-4, 3)$	B1	ft from answer of form $a(x+b)^2 + c$

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

11.

| 16 | | $(6, -1)$ | M1 for a method showing the translation or reflection in the x-axis of a graph or a correct coordinate
A1 cao |

Pearson Edexcel - Sample Paper 2 - (Calculator) Higher Tier

12.

7	(a)		$(1, 4)$	B1	
	(b)		$-0.4, 2.4$	B1	
	(c)		3.75	B1	accept $3.7 - 3.8$

Pearson Edexcel - Thursday 26 May 2016 - Paper 1 (Non-Calculator) Higher Tier

13.

| 10 | | $-3, -2$ | 2 | M1 for $x = -3$ or $y = -2$; for finding the difference between the x or y coordinates of M and P (eg ± 4 or ± 4.5); for $\dfrac{x+5}{2} = 1$ or for $\dfrac{y+7}{2} = 2.5$
A1 for $x = -3$, $y = -2$ |

Pearson Edexcel - Thursday 4 June 2015 - Paper 1 (Non-Calculator) Higher Tier

14.

15	(a)		(3, 6.5)	2	M1 for a method to find either the x coordinate or the y coordinate of the midpoint or $x = 3$ or $y = 6.5$ oe A1 cao [SC: B1 for (6.5, 3)]
	*(b)		No and correct working	3	M1 for a method to work out a gradient between any relevant pair of points (ie 2 of points A, B, C or D), eg. $\frac{9-4}{8--2}\left(=\frac{5}{10}\right)$ M1(dep) for a method to work out the gradient between another pair of points which can be used for comparison; one gradient must be through D. C1 for "no" and a correct explanation based on two correct gradients OR M1 for a method to work out a gradient between any relevant pair of points (ie 2 of points A, B, C or D), eg. $\frac{9-4}{8--2}\left(=\frac{5}{10}\right)$ M1 (dep) for using their gradient to work out an equation of a straight line in the form $y = mx + c$ and substituting in an appropriate point C1 for "no" and a correct explanation based on correct working OR M2 for (100, 55) or (102, 56) C1 for "no" and a correct explanation based on correct coordinates.

Pearson Edexcel - Thursday 4 June 2015 - Paper 1 (Non-Calculator) Higher Tier

15.

24	(a) (i)		(0, 5)	3	B1 cao
	(ii)		(3, 10)		B1 cao
	(iii)		(1, 5)		B1 cao
	(b)		Translation of $\begin{pmatrix} 0 \\ -4 \end{pmatrix}$ oe	1	B1 for a correct transformation, eg. translation of $\begin{pmatrix} 0 \\ -4 \end{pmatrix}$ or translation of 4 units in the negative y-direction, oe.

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

16.

12			$p = 8, q = 10$	3	M1 for finding the difference between the x or y coordinates eg $4 - 2 (= 2)$ or $17 - 5 (= 12)$ M1 for a complete method to find the value of p or the value of q A1 cao

Pearson Edexcel - Wednesday 5 November 2014 - Paper 1 (Non-Calculator) Higher Tier

17.

25	(i)		(3, −1)	3	B1 cao
	(ii)		(1.5, −4)		B1 for (1.5, −4) accept 1.5 or $1\frac{1}{2}$ or $\frac{3}{2}$ for x coordinate
	(iii)		(−3, −4)		B1 cao

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

18.

26	(a)		180, 0	1	B1 for 180, 0 Accept π, 0
	(b)		270, –1	1	B1 for 270, –1 accept $\dfrac{3\pi}{2}$, –1
	(c)		$a = 2$ $b = 3$ $c = 1$	3	B1 cao B1 cao B1 cao

Pearson Edexcel - Friday 13 June 2014 - Paper 2 (Calculator) Higher Tier

19.

1			(4, 5½)	2	M1 for $\dfrac{2+6}{2}$ or $\dfrac{3+8}{2}$ or 4, 5½ without brackets A1 for (4, 5½) oe NB: (4,5) gets 0 without working

Pearson Edexcel - Friday 13 June 2014 - Paper 2 (Calculator) Higher Tier

20.

19			(2, 1⅓, 1)	2	M1 for finding coordinates of P (6, 4, 3) or $OT = ⅓\ OP$ or 2 correct coordinate values A1 oe

Pearson Edexcel - Wednesday 6 November 2013 - Paper 1 (Non-Calculator) Higher Tier

21.

17		(3,6,7) to (–2,2,5) (–5, –4, –2) (–2– 5, 2 – 4, 5 – 2)	(–7, –2, 3)	2	M1 for midpoint plus change or complete method for 2 out of 3 coordinates, can be implied by 2 correct values A1 cao

Pearson Edexcel - Tuesday 11 June 2013 - Paper 1 (Non-Calculator) Higher Tier

22.

25	(a)		$a = 4, b = 5$	3	M1 for sight of $(x-4)^2$ M1 for $(x-4)^2 - 16 + 21$ A1 for $a = 4, b = 5$ OR M1 for $x^2 - 2ax + a^2 + b$ M1 for $-2a = -8$ and $a^2 + b = 21$ A1 for $a = 4, b = 5$
	(b)		(4, 5)	1	B1 ft

Pearson Edexcel - Tuesday 11 June 2013 - Paper 1 (Non-Calculator) Higher Tier

23.

28	(a)		$(90, 0)$	1	B1 for $(90, 0)$ (condone $(\frac{\pi}{2}, 0)$)
	(b)		Correct graph	1	B1 for graph through $(0, 2)$ $(90, 0)$ $(180, -2)$ $(270, 0)$ $(360, 2)$ professional judgement

Pearson Edexcel - Tuesday 6 November 2012 - Paper 1 (Non-Calculator) Higher Tier

24.

17			$(4,3)$, $(4,4)$, $(4,5)$, (5.4) marked	3	M2 for identifying the correct region or at least 3 correct points with no more than 3 incorrect points (M1 for drawing $x = 3$ (solid or dashed line) or at least 1 correct point with no more than 3 incorrect points) A1 cao

Pearson Edexcel - Tuesday 9 November 2010 - Paper 3 (Non-Calculator) Higher Tier

25.

14	$\frac{2+12}{2}$, $\frac{3+7}{2}$		7, 5	2	M1 for $\frac{2+12}{2}$ oe or $\frac{3+7}{2}$ oe (may be implied by one correct co-ordinate) A1 cao (SC : B1 for 5, 7)

Pearson Edexcel - Friday 12 November 2010 - Paper 4 (Calculator) Higher Tier

26.

16	(a)		$(0, 3, 2)$	1	B1 cao
	(b)		$(5, 3, 0)$	1	B1 cao

Pearson Edexcel - Friday 11 June 2010 - Paper 4 (Calculator) Higher Tier

27.

27	(a)		$y = f(x - 5)$	1	B1 cao
	(b)		$(4, 3)$	2	B2 cao (B1 for one coord. correct (in correct position) or $(3,4)$.)

Pearson Edexcel - Thursday 5 November 2009 - Paper 3 (Non-Calculator) Higher Tier

28.

24	(a)		$(5,-4)$	2	B2 for $(5,-4)$ (B1 for $(a,-4)$ or $(5,b)$ where $a \neq 5$ or 3 and $b \neq -4$).
	(b)		$(-2,2)$	2	B2 for $(-2,2)$ (B1 for $(a,2)$ or $(-2,b)$ where $a \neq -2$ and $b \neq 2$).

OCR GSCE – Thursday 5 November 2020 – Paper 5 (Non-Calculator) Higher Tier

29.

| 7 | | C (24, 9)
 D (10, 2) | 5 | **B4** for three correct ordinates <br> or
 B3 for two correct ordinates <br> or
 B2 for one correct ordinate from 24, 10, 2 <br> or for longer length of triangle = 7 **soi**
 or
 B1 for 9 as *y*-coordinate for C or for shorter length of triangle = 3 **soi**

 OR

 M1 for long = 17 − 4 − 2 × *their* short **oe**
 A1FT for C
 ((4 + 2 × *their* short + 2 × *their* long) , 9)
 A1FT for D
 (4 + 2 × *their* short , 9 − *their* long) | For part marks, check ordinates first (may be on diagram if answer line blank). If B2 or fewer check alt method and mark to candidates' advantage

 B4, B3, B2, B1 May be on diagram

 For M1 and A1FT, *their* short and *their* long needs to be clear in working or on diagram |

OCR GSCE – Tuesday 13 June 2017 – Paper 6 (Calculator) Higher Tier

30.

5	a	i	$-\dfrac{1}{4}$ oe	2 2 AO1.3a	**M1** for $\dfrac{\pm(3-6)}{\pm(8-{}^-4)}$ or answer $\dfrac{1}{4}$ oe or answer $-\dfrac{1}{4}x$	
		ii	$y=-\dfrac{1}{4}x+5$ oe	2 2 AO1.3b	**M1** for substitution of (-4, 6) or (8, 3) into $y = $ *their* (a)(i) $x + c$ or into $y - y_1 = $ *their* (a)(i)$(x - x_1)$ or intercept clearly identified as 5 (may be on diagram or in equation)	eg final answer for 2 marks $y - 3 = -\dfrac{1}{4}(x-8)$ oe or $y - 6 = -\dfrac{1}{4}(x - {}^-4)$ oe Missing "$y =$" scores **M1** max.
	b		$y=-\dfrac{1}{4}x-2$ oe or FT	2FT 2 AO2.1a	**B1FT** for $y = $ *their mx* [+ a] where *m* is FT **B1** for $y = bx - 2$, $b \neq 0$	FT is for *their* gradient in (a)(ii) (if no answer in (a)(ii) then use (a)(i)) Condone missing "$y =$" if already penalised in (a)(ii), otherwise missing "$y =$" is **B1** max

AQA GSCE – Thursday 8 November 2018 – Paper 2 (Calculator) Higher Tier

31.

	(1, 5)		B1	
2	**Additional Guidance**			

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

32.

	B and *C*		B1	
25	**Additional Guidance**			

33.

7	x-coordinate of C = 12 or y-coordinate of C = 8 or 12 marked on x-axis below C and 8 marked on y-axis left of C or x-coordinate of D = 6 + 6 + 6 or y-coordinate of D = 2 + 3 + 3 + 3 or $\dfrac{x}{6} = 3$ or $6 = (2 \times 0 + x) \div 3$ or $\dfrac{y-2}{5-2} = 3$ or $5 = (2 \times 2 + y) \div 3$ or 18 marked on x-axis below D or 11 marked on y-axis left of D	M1	oe sets up a correct equation for x-coordinate of D or y-coordinate of D
	(C is the point) (12, 8) or (D is the point) (18, …) or (…, 11) or 18 marked on x-axis below D and 11 marked on y-axis left of D	A1	condone missing brackets if intention is clear
	18, 11	A1	

Additional Guidance		
(12,8 , 18,11) on answer line with previous link to C and D		M1A1A1
(12,8 , 18,11) on answer line with no previous link to C and D		M1A1A0
12, 8 on answer line with no other working		M1A1A0
Accept correct working on diagram and correct answer on diagram if not contradicted by answer line		
11, 18 on answer line does not score the last mark, but may score M1A0 or M1A1		
11, 18 with no working		M0A0A0

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

34.

16	$\left(-\dfrac{3}{4}, 3\right)$	B1	
	Additional Guidance		

AQA GSCE – Thursday 2 November 2017 – Paper 1 (Non - Calculator) Higher Tier

35.

21	Set of 3 points that give area 28 and A on positive y-axis and B on negative y-axis and C on positive x-axis	B2	eg1 A(0, 10) B(0, –4) C(4, 0) eg2 A(0, 18) B(0, –10) C(2, 0) B1 diagram labelled with numbers that give area 28 eg A labelled 20, B labelled –8, C labelled 2 or calculation of form $\dfrac{b \times h}{2}$ seen that equals 28 or $b \times h$ that equals 2 × 28 eg $\dfrac{8 \times 7}{2}$ (= 28) or 8 × 7 (= 56)

AQA GSCE – Thursday 2 November 2017 – Paper 1 (Non - Calculator) Higher Tier

36.

23	(–3, 5)	B1	

AQA GSCE – Thursday 6 November 2017 – Paper 2 (Calculator) Higher Tier

37.

13	$\left(-\dfrac{1}{3}, -1\right)$	B1	
	Additional Guidance		

AQA GSCE – Thursday 8 June 2017 – Paper 2 (Calculator) Higher Tier

38.

	(5, 7)	B1	
3		**Additional Guidance**	

AQA GSCE – Tuesday 13 June 2017 – Paper 3 (Calculator) Higher Tier

39.

23	$0 = 5^2 + 5b + c$ or $-10 = 0^2 + b(0) + c$ or $c = -10$	M1	oe
	$b = -3$ or $x^2 - 3x + c$ or $(y =) x^2 - 3x - 10$	M1dep	oe $(x - 5)(x + k)$ and $-5k = -10$
	$(x - 5)(x + 2)$ or $\dfrac{--3 \pm \sqrt{(-3)^2 - 4 \times 1 \times -10}}{2 \times 1}$ or $\dfrac{3 \pm \sqrt{49}}{2}$ or $(x - \dfrac{3}{2})^2 + \ldots$ or $2x - 3 = 0$ or x-coordinate of $P = -2$ or two symmetrical coordinates	M1dep	oe Correctly factorises the 3-term quadratic expression or correctly substitutes into quadratic formula for the 3-term quadratic dep on M1 M1 eg (1, −12) and (2, −12)
	$1\dfrac{1}{2}$ or $\dfrac{3}{2}$ with no incorrect working	A1	oe Accept (1.5, −12.25)
		Additional Guidance	

AQA GSCE – Sample Paper 3 (Calculator) Higher Tier

40.

	Alternative method 1			
	$y = 2x$ or $(x, 2x)$	M1	oe	
	$x^2 + (2x)^2 = 2645$	M1	oe	
	$x^2 = 2645 \div 5$ or $x^2 = 529$ or $x = 23$	M1		
	$(23, 46)$	A1		
28	**Alternative method 2**			
	$\frac{1}{2}y = x$ or $(\frac{1}{2}y, y)$	M1	oe	
	$(\frac{1}{2}y)^2 + y^2 = 2645$	M1	oe	
	$y^2 = 2645 \div \frac{5}{4}$ or $y^2 = 2116$ or $y = 46$	M1		
	$(23, 46)$	A1		