FUNCTIONS AND THEIR GRAPHS

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

1.

3	B C D A	B2 (B1	cao for two or three correct)	

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

2.

17	B, A, D, C	B2 (B1	for all correct for two or three correct)	

Pearson Edexcel - Thursday 8 June 2017 - Paper 2 (Calculator) Higher Tier

3.

14		C, F, A, H	B3 [B2 [B1	for a fully correct table for 2 or 3 correct] for 1 correct]

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

4.

16		D, A, B, C	B2	B2 for all correct (B1 for at least 2 correct)

Pearson Edexcel - Friday 2 March 2012 - Paper 3 (Non-Calculator) Higher Tier

5.

20			E, B, F, C, D, A	3	B3 all correct (B2 4,5 correct) (B1 2 or 3 correct)

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

6.

11		A and 3 B and 2 C and 4 D and 1	2	B2 for all 4 correct (B1 for 2 correct)

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

7.

13	**(a)**		Correct sketch with max at (90, 1) and min at (270, –1) and crossing *x*-axis at 0, 180 and 360	**2**	**M1** for correct shape starting at (0, 0) but inaccurate at roots and max/min. Needs at least one cycle, but may have more than one.	Mark intention
13	**(b)**		120 300	**1** **1**	 **FT** *their* 120 + 180	 For FT both must be in range 0 to 360

OCR GSCE – Tuesday 2 November 2017 – Paper 4 (Calculator) Higher Tier

8.

16	**(a)**		$(x-3)^2 + 11$ final answer	**3**	**B1** for $(x-3)^2$ **B2** for +11 or **FT** *their* $(x-3)^2$	
	(b)		(3, 11)	**2**	**B1FT** for each part	**FT** *their* $(x-a)^2 + b$ e.g. (a, b)

OCR GSCE – Thursday 25 May 2017 – Paper 4 (Calculator) Higher Tier

9.

17			circle centre (0, 0) oe and radius 3	**1** **1**	condone circular accept origin or O for (0,0)	

OCR GSCE – Thursday 8 June 2017 – Paper 5 (Non - Calculator) Higher Tier

10.

19	**(a)**		U shaped parabola with minimum value indicated at (2, –3)	**3**	**B1** for U shape curve **B1** for turning point at (2, *k*) **B1** for turning point at (*k*, –3)	Be generous for the U shape condone broken line Values must be shown but could be marked on axes. Mark intention Accept turning point = (2, –3) written in working provided no contradiction on sketch If point (2, –3) only plotted on graph and no sketch then B0B1B1

19	**(b)**		4, 16, 12	**5**	**B4** for $a = 4$ and $b = 16$ **OR** **B3** for $c = 12$ and either $a = 4$ or $b = 16$ **OR** **M1** for $(x + 3)(x + 1)$ seen isw **A1** for $x^2 + x + 3x + 3$ or better seen isw **B1** for $c = 12$ **OR** **B1** for $c = 12$ soi **M1** for $(-1)^2a - 1b + 12 = 0$ oe **and** $(-3)^2a - 3b + 12 = 0$ oe	 Alt method uses simultaneous equations with $c = 12$ Allow recovery for omission of brackets if negatives correctly dealt with

AQA GSCE – Thursday 4 June 2020 – Paper 2 (Calculator) Higher Tier

11.

7(a)	2 and 5 with no other roots	B2	either order B1 at least one correct root with up to one incorrect root SC1 (2, 0) or (5, 0) or (2, 5) or (5, 2)
	Additional Guidance		
	$x = 2$ and $x = 5$		B2
	2, 5 or 5, 2		B2
	(2, 0) and (5, 0) and 2 and 5		SC1
	(2, 0) and (5, 0) and –2 and –5		B0
	2, 0 and 5, 0 (both pairs imply coordinates)		SC1
	2, 0 or 5, 0 (one pair implies roots)		B1
	(0, 2) and (0, 5)		B0
	0, 2 and 0, 5 (both pairs imply coordinates)		B0
	0, 2 or 0, 5 (one pair implies roots)		B1
	Both answers embedded $2^2 - 7 \times 2 + 10 = 0$ and $5^2 - 7 \times 5 + 10 = 0$		B1
	$(x - 2)(x - 5)$		B0

7(b)	3.5	B1	oe
	Additional Guidance		
	$x = 3.5$		B1
	$3.5x$		B0
	Ignore any y-coordinate even with brackets omitted eg (3.5, –2.25) or 3.5, –2 or $x = 3.5$ $y = -2.25$ or $x = 3.5$ $y = 2$		B1
	(–2.25, 3.5)		B0

AQA GSCE – Thursday 4 June 2020 – Paper 2 (Calculator) Higher Tier

12.

21(a)	(2.5, 0.4)	B1	
	Additional Guidance		

21(b)	Valid criticism	B1	eg the graph should go through (4, 16)
	Additional Guidance		
	(4, 15) should be (4, 16)		B1
	It should be (4, 16)		B1
	Graph should end at (y =) 16		B1
	(4, 15) is not on the graph		B1
	The point at $x = 4$ is wrong		B1
	The point at 4 is wrong		B0
	2^4 is 16		B1
	4^2 is 16		B0
	The last point is wrong		B1
	One of the points is wrong		B0
	Graph isn't high enough		B0

AQA GSCE – Thursday 4 June 2020 – Paper 2 (Calculator) Higher Tier

13.

22	A	B1	
	Additional Guidance		

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

14.

Q	Answer	Mark	Comments
24(a)	Draws a tangent at (2, 7)	M1	Must see a tangent on the graph
	Their gradient at (2, 7)	A1ft	ft their tangent ± 0.2 tolerance on their readings
	Additional Guidance		
	Mark intention for drawing of tangent		
	No tangent drawn		M0A0

Q	Answer	Mark	Comments
24(b)	It is negative	B1	

AQA GSCE – Tuesday 11 June 2019 – Paper 3 (Calculator) Higher Tier

15.

24	$\sin 24 = \frac{h}{20}$	M1	oe $\cos 66 = \frac{h}{20}$ $\frac{20}{\sin 90} = \frac{h}{\sin 24}$
	20 × sin 24 or 8.1…	M1dep	20 × cos 66 $\frac{20}{\sin 90} \times \sin 24$
	[1215, 1221]	A1	with no incorrect working seen
	Additional Guidance		
	150 × 20 × sin 24		M1M1

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

16.

12	Graph should be a curve	B1	oe eg Should not be straight lines Not a curve Not smooth Too straight Need more points plotted
	Additional Guidance		

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

17.

25(a)	300	B1	

25(b)	240	B1	

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

18.

18	Valid criticism	B1	eg (y =) 0.5 should be (y =) 1 y = 0.5 should be when x = 1 When x = 0 y = 1 0.5 is incorrect Crosses y axis in wrong place Graph should start at 1 $0.5^0 = 1$
	Additional Guidance		
	Do not accept statements which are contradictory		
	He does not have a scale on the x axis		B0
	It does not pass through zero		B0
	The line should meet the x axis		B0

AQA GSCE – Sample Paper 1 (Non - Calculator) Higher Tier

19.

4	B	B1	

AQA GSCE – Sample Paper 3 (Calculator) Higher Tier

20.

4	D	B1	