AQA Practice GCSE Examination Paper Foundation Set 5 Paper 2 Calculator

Solutions

Q <u>u</u> Nº	Answer	Solutions	Marks		AO	Spec.
1	0.625	$\frac{5}{8} = 5 \div 8 = 0.625$	A1	1	1.3a	N10
2	49	Square numbers: 1, 4, 9, 16, 25, 36, 49, 64 Square numbers in options: 49 and 64 49 is the smaller of the two square numbers	B1	1	1.3a	N1 N6
3a	24	Factors of 72 are numbers that divide exactly into 72 \div 24 = 3, so 24 is a factor of 72	B1		1.1	N4
b	11	A prime number is only divisible by itself and 1 11 is the prime number in the list $(1 \times 11 = 11)$	B1	2	1.1	N4
4	<u>1</u> 9	18 bulbs in total; 6 of the bulbs are daffodil bulbs (D) $P(D) = \frac{\text{Number of daffodil bulbs}}{\text{Total number of bulbs}} = \frac{6}{18}$ The bulb taken out first is put back, making the two events independent, $so P(D\&D) = P(D) \times P(D) = \frac{6}{18} \times \frac{6}{18} = \frac{1}{3} \times \frac{1}{3}$ $= \frac{1}{9}$	M1 multiplying probabilities	2	1.3a	P3
5	<u>1</u> 3	Ratio of Milk: White: Dark is 5: 4:3 Fraction of white chocolates is $\frac{4}{5+4+3} = \frac{4}{12}$ $\frac{4}{12} = \frac{1 \times 4}{3 \times 4} = \frac{1}{3}$	M1 A1	2	1.3a	R8 N11
6	1,120g or 1.12 kg	1 pound = 16 ounces \therefore 2.5 pounds = 2.5 \times 16 = 40 ounces 1 ounce \approx 28g \therefore 40 ounces \approx 40 \times 28 = 1120 g [= 1.12 kg]	M1 M1 A1	3	1.3a	R1
7	33	f = 6 & g = 5, $\frac{f}{2} + gf = \frac{6}{2} + (5 \times 6)$ = 3 + 30 = 33	M1 substituting	2	1.3a	A2
8	Yes (Mark is right) [with working]	Working must be seen In a right-angled triangle, $a^2 + b^2 = c^2$ where c is the hypotenuse. Let $a = 10$ cm & $b = 24$ cm $c^2 = 10^2 + 24^2 = 676$ $c = \sqrt{676} = 26$ cm \therefore Mark is correct because the hypotenuse of his triangle equals 26 cm	M1 M1 M1 A1	4	1.3b 2.1a 3.1b	G6
9	'Show That' Q ^U working must be shown	Working must be shown 1 m = 100 cm \div 5 m = 5 × 100 = 500 cm The total amount of wire used to make the necklaces is 8 × 40 = 320 cm There is $500 - 320 = 180$ cm of wire left over to make bracelets Each bracelet uses 25 cm of wire There is enough wire left to make $180 \div 25 = 7.2$ bracelets 7.2 rounds down to 7 (not enough wire to make 8 bracelets) Sarah can make a total of 7 bracelets	M1 M1 M1	4	3.1d 1.3b 2.2	N2 N15

Q <u>u</u> Nº	Answer	Solutions	Marks	AO	Spec.	
10		M1	1.3b 3.1c	K9		
	1 more textbook [with working]	Online, each textbook has a 15% discount \because each book costs $25 \times 0.85 = £21.25$ each $120 \div 21.25 = 5.647 \because$ online, Aliyah can by 5 textbooks (5.647 is rounded down as she doesn't have enough to buy 6) $5-4=1$ \therefore Aliyah can buy 1 more textbook if she buys them online	M1 M1 A1	3.3	N15	
11	952	170% = $\frac{170}{100}$ = 1.7 Either: 170% of 560 is 1.7 × 560 = 952 Or: 170% of 560 is $\frac{170}{100}$ × 560 = $\frac{170 \times 560}{100}$ = $\frac{95200}{100}$ = 952	A1	1.3a	N12 R9	
12	1.8 litres	18 cups with each cup getting 400 ml of soya milk Total amount of soya milk required is 18 × 400 = 7200 ml 1 litre = 1000 m ⋅ 7200 ml = 7200 ÷ 1000 = 7.2 litres Peter had 9 litres of soya milk Remaining amount of soya milk is 9 − 7.2 = 1.8 litres	M1 M1 A1	3.1c 1.3b	l Kh	
13	15	$mean = \frac{sum \text{ of all scores}}{number \text{ of teams}}$ The sum of all scores is $(9 \times 3) + (10 \times 5) + (11 \times 7) + (12 \times 6) + (13 \times 4) + (14 \times 5) = 348$ The mean score of the quiz is $348 \div 30 = 11.6$ The number of teams that scored higher than 11.6 is $6 + 4 + 5 = 15$ 15 teams will be in the second round of the quiz	M1 M1 A1	1.3b	S4	
14	8/30 or 4/15	Number of green apples is $30 \times \frac{1}{3} = 10$ Number of red apples is $30 - 10 = 20$ Number of red apples from Ben's garden is $20 \times \frac{2}{5} = 8$ P(red apple from Ben's garden) = $\frac{\text{Number of red apples from Ben's garden}}{\text{Number of apples}} = \frac{8}{30} = \frac{4}{15}$	M1 M1	3.1d 1.3b		

Q <u>u</u> Nº	Aı	Answer Solutions					Marks		AO	Spec.			
15a				Pattern number, n	1	2	3	4					
			Numbe	r of white triangles	3	6	9	12					
			The comm	mon difference in the	+ ; number o		-	+ 3 : hetween				2.4	
				is 3 so find $3n$ value		i wille	ulaligies	Detween		M1 method to find the		2.1a 1.3a	A25
				3 <i>n</i>	3	6	9	12		n telli		1.54	
			Numbe	r of white triangles	_	6	9	12	+ 0				
				per of white triangles		ne as th	ie 3 <i>n</i> va	lues,					
		3 <i>n</i>	so the nu	ımber of white triang	les in patte	ern n is	3 <i>n</i>			A1			
b				he total number of t	riangles is	add 8 e	each time	e, or patte	ern				
			number >		:- 100 ×	n				M1 method to calculate		2.1a	A24
		000		ngles in pattern 100	IS 100 X	ŏ 				number of triangles		1.3a	
		800	= 800							A1			
С				must be given e.g. per of triangles starts	at 8 and i	increase	es hv 8 e	ach time	<i>or</i> the				
	Vec (I	awrence is		of triangles is always			.5 by 0 C	acii tiiric	Or the	A1		2.4a	A24
	,	orrect)		Even = Even <i>or</i> mult			ays even						
		reason]		al number of triangle	•		-			A1	6		
16a			/2 ⊥ 1\ ·	× 7 × 13						M1 trial & error		2.4	
			(3 + 1)	^ / ^ I3 						A1 correct working		3.1a 1.3b	N2
		364	= 364							A1 correct answer		1.55	
b			_	n's number is 9									
			$7 \times 3 = 21 - 13$									1.3b	N2 N3
	Anv suital	ole calculation								A1	4		IND
17a	,	Colum		Column 2	Colu	ımn 3							
	Row 1	3 x		x	4	x	(3x + x =	= 4x)				
	Row 2	4 x		2 <i>x</i>	(δx	(2	4x + 2x	=6x)	A1 1 out of 3 correct		1.3b	A4
	Row 3	7 x		3 <i>x</i>		0 <i>x</i>		x + 3x =	= 10x)	A1 all correct			
		(3x + 4x =	7 <i>x</i>)	(x + 2x = 3x)	(4x + 7)	x = 10	<i>x</i>)						
b						_							
	De 4 F	Column 1		Column 2	Column		, , ,	(1	\				
	Row 1 Row 2	$\frac{2x + y}{-2x}$		4x - y x	6 x	-		+ x = -		A1 1 out of 4 correct A1 2 out of 4 correct			
	Row 3	<u>-2x</u> y		5x-y	$\frac{-x}{5x}$			(x - y) = 0		A1 all correct			
	<u>L</u>		= v (4x -	$\frac{3x}{-y} + x = 5x - y$		 5 <i>x</i>	y 1 (3.	<i>x y</i> ₁ –	JA			1.3b	A4
	Additional									•		1.50	ДТ
		•	+ y) +?=	= y; ? = -2x									
	Row 1, Co	lumn 2: (2 <i>x</i> -	+ y) + ? =	= 6x; ? = 4x - y									
	Row 3, Co	lumn 2: (4 <i>x</i> -	-y)+x=	= ?; ? = 5x - y									
	Row 2, Co	lumn 3: -2 <i>x</i>	+x = ?;	? = -x							5		
18			Reason n	must be given						M1 starting reasoning			
			R = 6s -	-3t = 3(2s - t)						e.g. factorising expression		1.3a	A4
	•) is a multiple of 3 :	Patrick is	correct	R will a	lways be	a			2.4a	N4
	[with	reason]	multiple o	of 3						A1	2		

Q ^u Nº	Answer	Solutions	Marks		АО	Spec.
19a		Working must be shown On the diagram, distance between Bath & Manchester is 8.7 ± 0.2 cm Scale: 1 cm represents 20 miles The distance between Bath & Manchester is 8.7×20 $= 174 \pm 4$ miles A5 version: 6.1 cm (accept 5.8 to 6.3 cm) 6.1 $\times 20 = 122$ miles (accept 116 to 126 miles)	M1			
	6 pm [with working]	Average speed is 58 mph Speed = $\frac{\text{Distance}}{\text{Time}} \rightarrow \text{Time} = \frac{\text{Distance}}{\text{Speed}}$ Time taken to drive from Bath to Manchester is $\frac{174}{58} = 3$ hrs Halima left Bath at 3pm. The journey took 3 hours. Halima arrived in Manchester at 3 + 3 = 6pm. (accept 176 to 125 mines) $\frac{122}{58} = 2.1 \text{ hours } [= 2 hours$			1.3b 3.1c 3.3	R2 R11
b	Any suitable assumption with explanation	e.g. Assumed that Halima didn't get stuck in traffic. If Halima did get stuck in traffic, this would have increased her journey time.	A1	4	3.4a	R11
20	4w(2+y)	HCF of $8w \& 4wy = 4w$, so $4w$ goes outside the brackets: $8w + 4wy = 4w(2 + y)$	B1	1	1.3a	A4
21	x = 6 or -6	$4x^{2} = 144$ [÷4] $x^{2} = 36$ [$\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $	M1 A1	2	1.3b	A17
22	16	Factors of 16: 1, 2, 4, 8, 16 (1 × 16 = 16, 2 × 8 = 16, 3 × 4 = 16) Factors of 32: 1, 2, 4, 8, 16 , 32 (1 × 32 = 32, 2 × 16 = 32, 4 × 8 = 32) Factors of 64: 1, 2, 4, 8, 16 , 32, 64 (1 × 64 = 64, 2 × 32 = 64, 4 × $16 = 64, 8 \times 8 = 64$)	M1 listing factors		1.3a	N4 N5
23	16 24.2 cm	HCF of 16, 32 & 64 is 16 (highest number common to all lists) $\theta = 25^{\circ}; \text{ Opposite} = 14 \text{ cm}; \text{ Adjacent} = \text{AC}$ $\tan \theta = \frac{\text{opposite}}{\text{adjacent}}$ $\rightarrow \text{adjacent} = \frac{\text{opposite}}{\tan \theta}$ $\text{AC} = \frac{14}{\tan 30^{\circ}}$ $= 24.248 = 24.2 \text{ cm correct to 1 decimal place}$	M1 A1	2	1.3b	G20
24	$\begin{pmatrix} 1 \\ -2 \end{pmatrix}$	$\mathbf{b} - \mathbf{a} = \begin{pmatrix} -2 \\ 3 \end{pmatrix} - \begin{pmatrix} -3 \\ 5 \end{pmatrix}$ $= \begin{pmatrix} -23 \\ 3 - 5 \end{pmatrix} = \begin{pmatrix} -2 + 3 \\ 3 - 5 \end{pmatrix} = \begin{pmatrix} 1 \\ -2 \end{pmatrix}$	M1 A1	2	1.2 1.3a	G25
25	25%	Angle for fossil fuels is 216° Angle for solar power is 216 – 126 = 90° Percentage of town's energy generated by solar power is $\frac{90}{360} \times 100$ = 25%	M1 M1 A1	3	1.3b	S2 R9

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26		Volume of a pyramid $=\frac{1}{3} \times$ area of base \times height of pyramid Base of pyramid is a triangle.						
		Area of a triangle = $\frac{1}{2} \times \text{base} \times \text{height}$ Area of base is $\frac{1}{2} \times 9 \times 18 = 81 \text{ cm}^2$	M1		1.3b 3.1a	G17		
		Volume of pyramid is $\frac{1}{3} \times 81 \times 14$	M1					
	378 cm ³	= 378 cm ³	A1	3				
27a	34 mph	From the graph, 54 km/h = 34 mph	A1	i	2.3a	A14		
b		$50 \div 2 = 25$ From the graph, 25 mph = 40.5 (± 0.5) km/h	M1		2.1a	A 4 4		
		$25 \times 2 = 50 \text{ mph} \div 50 \text{ mph} = 40.5 \times 2$	M1		2.3a 3.1a	A14		
	81 (± 1) km/h	= 81 (± 1) km/h	A1		Jila			
С	Yes [with reason]	e.g. the graph is a straight line passing through the origin \because it shows that km/h is directly proportional to mph	A1	5	2.4a	A12		
28	720°	Interior angles of a triangle sum to 180° ABCDEF has been divided in to 4 triangles The sum of the interior angles of ABCDEF is 4×180 = 720°	M1A1	2	2.1a	G3 G6		
29	, 20	Force on the table is 20 N; area in contact with desk is 0.5 m ²		쿠				
23	40 N/m²	$\frac{\text{Pressure}}{\text{Area}} : \text{Pressure exerted on table} = \frac{20}{0.5}$	M1		1.3a	R11		
	40 N/m ²	= 40 N/m ²	A1	2				
Total Marks: 80								