<table>
<tr><td colspan="2">Edexcel Practice GCSE Examination Paper
Foundation Set 5 Paper 2 Calculator</td><td colspan="2">Solutions</td></tr>
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Qu №	Answer	Solutions	Marks		AO	Spec.
1	0.625	$\dfrac{5}{8} = 0.625$ A1		1	1.3a	N10
2	49	Square numbers: 1, 4, 9, 16, 25, 36, 49, 64 Square number between 40 and 60: 49 ($= 7^2 = 7 \times 7$) B1		1	1.3a	N1 N6
3a	24	Factors of 72 are numbers that divide exactly into 72 $72 \div 24 = 3$, 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	$\dfrac{1}{9}$	18 bulbs in total; 6 of the bulbs are daffodil bulbs (D) $P(D) = \dfrac{6}{18}$ The bulb taken out first is put back, making the two events independent, so $P(D\,\&\,D) = P(D) \times P(D) = \dfrac{6}{18} \times \dfrac{6}{18}$ M1 multiplying probabilities $= \dfrac{1}{9}$ A1		2	1.3a	P3
5	$\dfrac{1}{3}$	Ratio of Milk : White : Dark is 5 : 4 : 3 Fraction of white chocolates is $\dfrac{4}{5+4+3} = \dfrac{4}{12}$ M1 $\dfrac{4}{12} = \dfrac{4 \div 4}{12 \div 4} = \dfrac{1}{3}$ 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 M1 1 ounces $\approx$ 28g $\therefore$ 40 ounces $\approx$ 40 $\times$ 28 M1 $=$ 1120 g [$=$ 1.12 kg] A1		3	1.3a	R1
7	33	$f = 6$ & $g = 5$, $\dfrac{f}{2} + gf = \dfrac{6}{2} + (5 \times 6)$ M1 substituting $= 3 + 30 = 33$ A1		2	1.3a	A2
8	Mark is correct [with working]	***Working must be seen*** In a right-angled triangle, $a^2 + b^2 = c^2$ where c is the hypotenuse. M1 Let $a = 10$ cm & $b = 24$ cm $c^2 = 10^2 + 24^2 = 676$ M1 $c = \sqrt{676} = 26$ cm M1 $\therefore$ Mark is correct because the hypotenuse of his triangle equals 26 cm A1		4	1.3b 2.1a 3.1b	G6
9	**'Show That' Qᵁ** *working must be shown*	***Working must be shown*** 1 m $=$ 100 cm $\therefore$ 5 m $=$ 5 $\times$ 100 $=$ 500 cm The total amount of wire used to make the necklaces is 8 $\times$ 40 $=$ 320 cm M1 There is 500 $-$ 320 $=$ 180 cm of wire left over to make bracelets M1 Each bracelet uses 25 cm of wire There is enough wire left to make 180 $\div$ 25 $=$ 7.2 bracelets M1 7.2 rounds down to 7 (not enough wire to make 8 bracelets) Sarah can make a total of 7 bracelets A1		4	3.1d 1.3b 2.2	N2 N15

Quᵘ №	Answer	Solutions	Marks		AO	Spec.
10		**Working must be shown** £120 budget. In store, textbooks cost £25 each $120 \div 25 = 4.8$ ∴ in store, Aliyah can buy 4 textbooks (4.8 is rounded down as she doesn't have enough money to buy 5)	M1		1.3b 3.1c 3.3	R9 N15
		Online, each textbook has a 15% discount ∴ each book costs $25 \times 0.85 = £21.25$ each	M1			
		$120 \div 21.25 = 5.647\ldots$ ∴ online, Aliyah can by 5 textbooks (5.647… is rounded down as she doesn't have enough to buy 6)	M1			
	1 more textbook [with working]	$5 - 4 = 1$ ∴ Aliyah can buy 1 more textbook if she buys them online	A1	**4**		
11		$170\% = \dfrac{170}{100} = 1.7$ **Either:** 170% of 560 is 1.7×560 | **Or:** 170% of 560 is $\dfrac{170}{100} \times 560 = \dfrac{170 \times 560}{100}$	M1		1.3a	N12 R9
	952	$= 952$ | $= \dfrac{95200}{100} = 952$	A1	**2**		
12		18 cups with each cup getting 400 ml of soya milk Total amount of soya milk required is $18 \times 400 = 7200$ ml	M1		3.1c 1.3b	R5
		1 litre = 1000 m ∴ 7200 ml = $7200 \div 1000 = 7.2$ litres Peter had 9 litres of soya milk Remaining amount of soya milk is $9 - 7.2$	M1			
	1.8 litres	$= 1.8$ litres	A1	**3**		
13		$\text{mean} = \dfrac{\text{sum of all scores}}{\text{number of teams}}$ The sum of all scores is $(9 \times 3) + (10 \times 5) + (11 \times 7) + (12 \times 6) + (13 \times 4) + (14 \times 5) = 348$	M1		1.3b	S4
		The mean score of the quiz is $348 \div 30 = 11.6$	M1			
	15	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	A1	**3**		
14		30 apples in total Number of green apples is $30 \times \dfrac{1}{3} = 10$	M1		3.1d 1.3b	N2 P3
		Number of red apples is $30 - 10 = 20$ Number of red apples from Ben's garden is $20 \times \dfrac{2}{5} = 8$	M1			
	$\dfrac{8}{30}$ or $\dfrac{4}{15}$	P(red apple from Ben's garden) $= \dfrac{8}{30} = \dfrac{4}{15}$	A1	**3**		

Qᵘ Nº	Answer	Solutions	Marks	AO	Spec.

15a

Pattern number, n	1	2	3	4
Number of white triangles	3	6	9	12

$+3$ $+3$ $+3$

The common difference in the number of white triangles between patterns is 3 so find $3n$ values

$3n$	3	6	9	12
Number of white triangles	3	6	9	12

$+0$

The number of white triangles is the same as the $3n$ values, so the number of white triangles in pattern n is $3n$

Answer: $3n$

M1 method to find the nth term

A1

AO: 2.1a 1.3a — Spec: A25

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b

Rule for the total number of triangles is add 8 each time, or pattern number × 8.
Total triangles in pattern 100 is 100×8

M1 method to calculate number of triangles

Answer: 800

$= 800$

C1

AO: 2.1a 1.3a — Spec: A24

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c

Answer: Yes [with reason]

Reason must be given
The number of triangles starts at 8 and increases by 8 each time
Even + Even = Even, so the total number of triangles will never be odd

C1

5

AO: 2.4a — Spec: A24

16a

$(3 + 1) \times 7 \times 13$

M1 trial & error
A1 correct working

Answer: 364

$= 364$

A1 correct answer

AO: 3.1a 1.3b — Spec: N2

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b

e.g. Aiden's number is 9
$7 \times 3 = 21$
$21 - 13 = 8$

Answer: Any suitable calculation

$8 + 1 = 9$

A1

4

AO: 1.3b — Spec: N2 N3

17a

	Column 1	Column 2	Column 3	
Row 1	$3x$	x	$4x$	$(3x + x = 4x)$
Row 2	$4x$	$2x$	$6x$	$(4x + 2x = 6x)$
Row 3	$7x$	$3x$	$10x$	$(7x + 3x = 10x)$

$(3x + 4x = 7x)$ $(x + 2x = 3x)$ $(4x + 7x = 10x)$

A1 1 out of 3 correct
A1 all correct

AO: 1.3b — Spec: A4

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b

	Column 1	Column 2	Column 3	
Row 1	$2x + y$	$4x - y$	$6x$	$(2x + y) + (4x − y) = 6x$
Row 2	$−2x$	x	$−x$	$−2x + x = −x$
Row 3	y	$5x − y$	$5x$	$y + (5x − y) = 5x$

$2x + y − 2x = y$ $(4x − y) + x = 5x − y$ $6x − x = 5x$

A1 1 out of 4 correct
A1 2 out of 4 correct
A1 all correct

Additional Working:
Row 2, Column 1: $(2x + y) + ? = y$; $? = −2x$
Row 1, Column 2: $(2x + y) + ? = 6x$; $? = 4x − y$
Row 3, Column 2: $(4x − y) + x = ?$; $? = 5x − y$
Row 2, Column 3: $−2x + x = ?$; $? = −x$

5

AO: 1.3b — Spec: A4

18

Answer: Patrick is correct [with reason]

Reason must be given
$R = 6s − 3t = 3(2s − t)$

$3(2s − 4)$ is a multiple of 3 ∴ Patrick is correct, R will always be a multiple of 3

M1 starting reasoning e.g. factorising expression

A1

2

AO: 1.3a 2.4a — Spec: A4 N4

Qᵘ №	Answer	Solutions		Marks		AO	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 ± 4 miles	A5 version: 6.1 cm (accept 5.8 to 6.3 cm) 6.1 × 20 = 122 miles (accept 116 to 126 miles)	M1		1.3b 3.1c 3.3	R2 R11
		Average speed is 58 mph $\text{Speed} = \dfrac{\text{Distance}}{\text{Time}} \rightarrow \text{Time} = \dfrac{\text{Distance}}{\text{Speed}}$ Time taken to drive from Bath to Manchester is $\dfrac{174}{58} = 3$ hrs	$\dfrac{122}{58} = 2.1$ hours [= 2 hours & 6 minutes] (accept 2 hours to 2 hours & 11 minutes)	M1			
	6 pm [with working]	Halima left Bath at 3pm. The journey took 3 hours. Halima arrived in Manchester at 3 + 3 = 6pm.	5:06 pm (accept 5:00 pm to 5:11 pm)	A1			
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		$4x^2 = 144 \qquad [\div 4]$ $x^2 = 36 \qquad [\sqrt{\ }]$		M1		1.3b	A17
	$x = 6$ or -6	$x = 6$ or -6		A1	**2**		
22		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 × 8 = 64)		M1 listing factors		1.3a	N4 N5
	16	HCF of 16, 32 & 64 is 16 (highest number common to all lists)		A1	**2**		
23		$\theta = 25°$; Opposite = 14 cm ; Adjacent = AC $\tan \theta = \dfrac{\text{opposite}}{\text{adjacent}}$ $\rightarrow \text{adjacent} = \dfrac{\text{opposite}}{\tan \theta}$ $AC = \dfrac{14}{\tan 30°}$		M1		1.3b	G20
	24.2 cm	$= 24.248\ldots = 24.2$ cm correct to 1 decimal place		A1	**2**		
24		$\mathbf{b} - \mathbf{a} = \begin{pmatrix} -2 \\ 3 \end{pmatrix} - \begin{pmatrix} -3 \\ 5 \end{pmatrix}$		C1		1.2 1.3a	G25
	$\begin{pmatrix} 1 \\ -2 \end{pmatrix}$	$= \begin{pmatrix} -2 - -3 \\ 3 - 5 \end{pmatrix} = \begin{pmatrix} -2 + 3 \\ 3 - 5 \end{pmatrix} = \begin{pmatrix} 1 \\ -2 \end{pmatrix}$		C1	**2**		
25		Angle for fossil fuels is 216° Angle for solar power is 216 − 126 = 90°		M1		1.3b	S2 R9
		Percentage of town's energy generated by solar power is $\dfrac{90}{360} \times 100$		M1			
	25%	= 25%		A1	**3**		

Qᵘ №	Answer	Solutions	Marks		AO	Spec.
26		Volume of a pyramid $= \dfrac{1}{3} \times$ area of base $\times$ height of pyramid Base of pyramid is a triangle. Area of a triangle $= \dfrac{1}{2} \times$ base $\times$ height Area of base is $\dfrac{1}{2} \times 9 \times 18 = 81 \text{ cm}^2$	M1		1.3b 3.1a	G17
		Volume of pyramid is $\dfrac{1}{3} \times 81 \times 14$	M1			
	378 cm³	$= 378 \text{ cm}^3$	A1	**3**		
27a	34 ($\pm$ 0.5) mph	From the graph, 54 km/h = 34 ($\pm$ 0.5) mph	A1		2.3a	A14
b		$50 \div 2 = 25$ From the graph, 25 mph = 40.5 ($\pm$ 0.5) km/h	M1		2.1a 2.3a 3.1a	A14
		$25 \times 2 = 50$ mph $\therefore 50$ mph $= 40.5 \times 2$	M1			
	81 ($\pm$ 1) km/h	$= 81$ ($\pm$ 1) km/h	A1			
c	Yes [with reason]	**e.g.** the graph is a straight line passing through the origin $\therefore$ it shows that km/h is directly proportional to mph	A1	**5**	2.4a	A12
28		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	M1		2.1a	G3 G6
	720°	$= 720°$	A1	**2**		
29		Force on the table is 20 N; area in contact with desk is 0.5 m² Pressure $= \dfrac{\text{Force}}{\text{Area}} \therefore$ Pressure exerted on table $= \dfrac{20}{0.5}$	M1		1.3a	R11
	40 N/m²	$= 40 \text{ N/m}^2$	A1	**2**		
			Total Marks: 80			