Collins

AQA

GCSE

Mathematics

F

SET B – Foundation Tier

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Answers

Key to abbreviations used within the answers

M   method mark (e.g. M1 means 1 mark for method)

A   accuracy mark (e.g. A1 means 1 mark for accuracy)

B   independent marks that do not require method to be shown (e.g. B2 means 2 independent marks)

C   communication mark

oe   or equivalent

ft   follow through

dep   dependent on previous mark

cao   correct answer only

sc   special case

indep independent

Acknowledgements

Paper 1

Question	Answer	Mark	Comments
1	3500	B1	
2 (a)	7	B1	
2 (b)	7	B1	
3	$\dfrac{7}{10}$	B1	
4 (a)	4	B1	
4 (b)	11	B1	
4 (c)	4.25 + 2.75 + 1.5 or 8.5 or 17 × 2	M1	
	34	A1	
4 (d)	38 or 2 seen	M1	
	½ a circle drawn	A1	
5 (a)	985	B1	
5 (b)	167	B1	
5 (c)	138	B1	
5 (d)	32	B1	
6	2 and 5	B2	B1 for either answer and one wrong value e.g. 2 and 7 B1 for both answer and one other value, e.g. 1, 2, 5
7 (a)	07:24	B1	
7 (b)	36 + 1 + 05	M1	
	1 h 41 m	A1	
7 (c)	09 : 16 seen or 16 + 20 36 m	B1 B1	
8	Clear method shown (column, box, Chinese, partition)	M1	
	Correct partial calculation, e.g. 720, 48, 640, 128 or 3 out of 4 correct cells in box or Chinese methods	A1	
	768	A1	
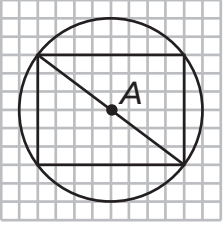
Question	Answer	Mark	Comments
9 (a)	4 correct plots	B2	B1 for 3 correct plots or 4 plots with coordinates reversed
9 (b)	Parallelogram	B1	
9 (c)	4 × 6	M1	
	24	A1	
10 (a)	$8a$	B1	
10 (b)	$6m$ or $30m$	M1	
	$36m$	A1	
11 (a)	[37, 37.5]	B1	
11 (b)	40 (hectares)	M1	
	40 × 25 000	M1dep	
	£1 000 000	A1	
12	$\dfrac{4}{7}$ × 56 or $\dfrac{9}{11}$ × 66	M1	
	32 or 54	A1	
	86	A1	
13 (a)	Mark at $\dfrac{1}{3}$	B1	
13 (b)	3 odd and 3 even numbers	B1	e.g. 2, 3, 5, 6, 7, 8 is B2 2, 3, 4, 5, 6, 8 is B1 2, 3, 4, 5, 7, 8 is B1 2, 3, 5, 6, 7, 9 is B0
	2 multiples of 3	B1	
14	ABC or ACB = 80	M1	
	ACD = 100	M1dep	
	40	A1	
15	360 ÷ 36 = 10	M1	
	Angles calculated as 70, 80, 100, 50 and 60	M1dep	
	Angles accurately drawn	A1	
	Sectors labelled	A1	
16	$\pi \times 10^2 \times 8$	M1	
	800π	A1	
17	$6x - 12 + 8 = x$	M1	
	$5x = 4$	M1dep	
	$x = 0.8$ oe	A1	

Question	Answer	Mark	Comments
18	Area any face, i.e. 20 × 5 or 100 etc.	M1	
	2 × 100 + 2 × 50 + 2 × 200	M1dep	
	700	A1	
19	$4x + 4 - 6x + 8$	M1	M1 for 3 terms correct A1 for 4 terms correct ft on M1, e.g. $4x + 1 - 6x - 8 = -2x - 7$ is M1, A0, A1ft
	$4x + 4 - 6x + 8$	A1	
	$-2x + 12$	A1ft	
20	$2x + 100 = 180$	M1	
	$360 \div 40$	M1dep	
	9	A1	
21 (a)	−1.5 and 3	B2	B1 each answer
21 (b)	(0.75, −6)	B1	
22 (a)	230 000	B1	
22 (b)	5×10^{-4}	B1	
22 (c)	1.6×10^8	B2	B1 for 16×10^7
23	$2n > -11$	M2	M1 for $2n > 3$ or $2n > -3$ or $4n > -11$
	$n > -5.5$	A1ft	ft on M1, e.g. $n > 1.5$
24 (a)	$\sqrt{52}$ cm	B1	
24 (b)	$\dfrac{3}{4}$	B1	
25	$x + 2 = 2x - 1$	M1	
	$x = 3$	A1	
	$3 + 2$ or $2 \times 3 - 1$	M1dep	
	5	A1	
	25	A1	

Paper 2

Question	Answer	Mark	Comments
1 (a)	40	B1	
1 (b)	100	B1	
2	$x - 4$	B1	
3	103	B1	
4 (a)	7645	B1	
4 (b)	Any 2 numbers shown, e.g. 4675, 4657 etc.	M1	
	6	A1	
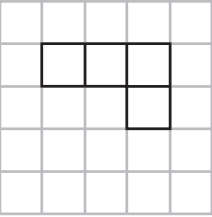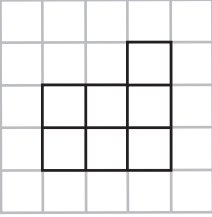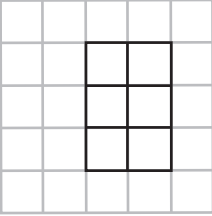
Question	Answer	Mark	Comments
5 (a)	B and F	B1	
5 (b)	4	B1	
5 (c)	2	B1	
5 (d)	Reflex	B1	
6 (a)	7.48 or 748 seen	M1	
	2.52	A1	
6 (b)	£2, 50p, 2p	B2ft	ft least number of coins for their answer for part (a) B1 for any correct combination of coins but not least number
7 (a)	280	B1	
7 (b)	3900	B1	
8 (a)	Add 4 each time	B1	
8 (b)	25	B1ft	ft their rule
8 (c)	34	B1	
8 (d)	$5n - 2$	B1	
9	Marks on diagram showing counting of 13 whole squares within or 33 outside shape	M1	
	Explanation that area must be between these limits	A1	
10 (a)	19	B1	
10 (b)	10	B1	
10 (c)	0.55 × 60 oe	M1	
	33	A1	
	Bar drawn to 33	A1	
10 (d)	28 + 19 + 38 + their week 4 or 118	M1	
	240 seen	B1	
	0.5 × 240 or 120	M1	
	Correct conclusion based on their total (No if correct)	A1	

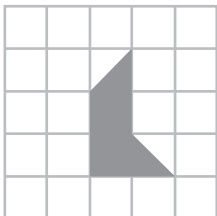| Question	Answer	Mark	Comments
11		B3	B1 for circle B1 for rectangle (may be a different orientation) B1 for either diagonal (allow both drawn)
12 (a)	26	B1	
12 (b)	32	B1	
13 (a)	3.6	B1	
13 (b)	402.(2…)	B1	
13 (c)	Either value rounded to 1 sf e.g. 100 or 20	M1	
	10 + 400 = 410	A1	
14	$\dfrac{7}{20}$	B2	B1 for 7 seen
15 (a)	4 + 7 × 2.25 + 8 × 0.75	M1	Allow mixed units
	25.75	A1	
15 (b)	21.25 − 6 × 2.25 − 4 or 3.75	M1	Allow mixed units
	Their 3.75 ÷ 0.75	M1dep	
	5	A1	
16 (a)	$x^2 − 2x + 3x − 6$	M1	4 terms, with one in x^2, 2 in x and a constant term
	$x^2 + x − 6$	A1	
16 (b)	$(x + a) x + b)$ where ab = ±3	M1	
	$(x + 1)(x + 3)$	A1	
17 (a)	Correct reflection	B2	B1 for reflection in $x = −1$
17 (b)	Correct translation	B2	B1 for correct translation of one vector component
18	$6^2 + 11^2$	M1	
	$\sqrt{157}$	M1dep	
	12.5…	A1	

Question	Answer	Mark	Comments
19	5 × 145 + 9 × 155 + 12 × 165 + 8 × 175 + 6 × 185 or 6610	M1	
	Their 6610 ÷ 40	M1dep	
	165.25	A1	
20 (a)	Any product including a prime that makes 28	M1	
	2 × 2 × 7 or $2^2 × 7$	A1	
20 (b)	2 × 2 × 5 × 7	M1	
	140	A1	
21	$4(x + 4) = 26$	M1	
	$4x = 10$	M1dep	
	2.5	A1	
22	0.85	B1	
	238 ÷ 0.85	M1	
	280	A1	
23	36 ÷ 3 or 12	M1	
	2 × 12 or 5 × 12	M1dep	
	24 and 60	A1	
24	$\sqrt{\dfrac{402}{\pi}}$ or 11.3…	M1	
	11.3 × π + 2 × 11.3	M1dep	
	[58, 58.2]	A1	
25	Arc from A cutting given ray	M1	
	Arc centred on intersection and crossing original arc plus line drawn	A1	Angle must be between [58, 62]

Paper 3

Question	Answer	Mark	Comments
1 (a)	0	B1	
1 (b)	2	B1	
2	$19.5 \le l < 20.5$	B1	
3	9	B1	

Question	Answer	Mark	Comments
4	Plan Front elevation Side elevation 	B3	B1 each Accept front and side elevation labelled the other way round
5	1, 2, 4, 5 10, 20	B2	B1 for 4 or 5 factors
6	Diameter	B1	
7	3 × 4 × 2	M1	
	24	A1	
8 (a)	16	B1	
8 (b)	4	B2	B1 for 100 B1 for 0.4
9 (a)	5 × 4.50	M1	
	22.50	A1	
9 (b)	3 × 3.50 + 3.00 + 2.00 + 1.00	M1	M1 for 5 people identified and off peak prices
	3 × 3.50 + 3.00 + 2.00 + 1.00	A1	All six identified and off peak prices
	16.50	A1	16.5 is A0 sc2 for 21
9 (c)	20 × 4.50 – 55	M1	
	35	A1	
10	98 ÷ 7 or 14	M1	
	42 or 56	A1	
	Tom 20, 10, 10, 2 Jerry 50, 5, 1	A1	Either order
11	56 ÷ 8	M1	
	7	A1	

Question	Answer	Mark	Comments
12	180 – 67 – 38	M1	
	75	A1	
13 (a)	3 × 8 × 6 or 144 or 3 × 2 × 4 or 24	M1	
	144 ÷ 24 (= 6)	A1	
13 (b)	720 ÷ 144 or 5 (layers)	M1	
	Small 12	A1	
	Large 3	A1	
14	350 ÷ 79 or 750 ÷ 185	M1	Allow mixed units
	4.43.. or 4.05..	A1	
	small packet	A1	
15	30 mins or 0.5 hours	B1	
	75 km	B1	
	60 km/h	B1	
16 (a)	More ice cream sold as temperature increases	B1	
16 (b)	Line of best fit	M1	
	480	A1ft	ft their line of best fit
17	17 or 37	B2	B1 for 26, 50, 65 or 82
18	1.03	B1	
	3000×1.03^3	M1	
	3278.18	A1	
19 (a)	x^9	B1	
19 (b)	x^{10}	B1	
20	$\begin{pmatrix} 10 \\ 4 \end{pmatrix}$	B2	B1 for each component
21	30	B1	
	38	B1	
22		B2	B1 for any enlargement that reduces the size of the shape and keeps the sides in relative ratio. B1 for any 3 sides correct.

Question	Answer	Mark	Comments
23	–2, –1, 0, 1, 2, 3	B2	B1 for –3, –2, –1, 0, 1, 2, 3 B1 for –2, –1, 0, 1, 2, 3, 4
24 (a)	A and C	B1	
24 (b)	A and D	B1	
25	C A B	B2	B1 for 1 correct
26	$1.5 \div 2$	M1	
	0.75	A1	
27	$3x + 2y = 2$ and $3x + 12y = 27$ or $6x + 4y = 4$ and $x + 4y = 9$	M1	
	$x = -1$	A1	
	$y = 2.5$	A1	
28 (a)	$\frac{4}{10}$ marked on red and $\frac{6}{10}$ marked on blue	B1	
28 (b)	$\frac{4}{10} \times \frac{4}{10}$ or $\frac{6}{10} \times \frac{6}{10}$	M1	
	$\frac{4}{10} \times \frac{4}{10} + \frac{6}{10} \times \frac{6}{10}$	M1dep	
	0.52	A1	oe

Question	Answer	Mark	Comments
29	$x = 2$ and -3	B1	
30 (a)	$(x + 5)(x - 5)$	B1	
30 (b)	$x^2 + 4x + 4$ or $x^2 + 2x + 1$	M1	$(x + 2 + x + 1)(x + 2 - (x + 1))$
	$x^2 + 4x + 4 - (x^2 + 2x + 1)$	M1dep	$(2x + 3)(1)$
	Shows subtraction of terms clearly	A1	
31 (a)	$12 \times \sin 32 = 6.359…$	B1	
31 (b)	$\pi \times 6.36 \times 12$	M1	
	[236.6, 240]	A1	
32	$\dfrac{\sqrt{3}}{2}$	B1	

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