Edexcel GCSE

Mathematics 2381

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Mark Scheme (Results)

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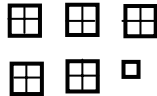
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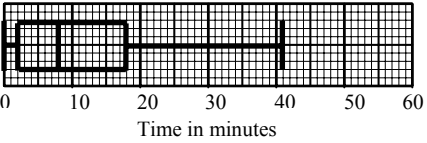
5381F/05 - Section A					
Question		Working	Answer	Mark	Notes
1	(a)		7	1	B1 cao
	(b)		Monday	1	B1 cao accept abbreviations
	(c)		Tuesday and Wednesday	1	B1 cao accept abbreviations (not T)
2	(a)		10 centime	1	B1 for 10 centime or centime
	(b)		1 dollar	1	B1 for 1 dollar or dollar
3	(a)		$\dfrac{1}{4}$	1	B1 for $\dfrac{1}{4}$ or equivalent fraction
	(b)	20×3	60	2	M1 for $360 \div 120$ or 3 seen or $360 \div (120 \div 20)$ or three of 20,10,10,15,5 seen either on the diagram or seen in a sum of 4 or 5 numbers A1 ca
4	(a)		**23 14** 37 **19** 24 43 42 38 **80**	3	B3 for all correct (B2 for 5, 6, 7 or 8 correct) (B1 for any 2 of the 4 given correctly placed)
	(b)		$\dfrac{42}{80}$	1	B1 for $\dfrac{"42"}{"80"}$ oe
5	(a)		Positive	1	B1 cao (Accept +ve)
	(b)		Line of best fit	1	B1 for a straight line passing between (65, 160) and (65, 166) and between (80, 178) and (80, 184)
	(c)		$173 - 176$	1	B1 for $173 - 176$ or ft from a single line segment with positive gradient ± 1 full (2mm) square

5381F/05-Section B					
Question		Working	Answer	Mark	Notes
1	(a)(i)		8	1	B1 cao
	(ii)		10	1	B1 cao
	(b)		⊞ ⊞ ⊞ ⊞ ⊞ ▫	2	B1 cao B1 cao
2	(a)	(1,H), (2,H), (3,H), (4,H), (5,H), (1,T), (2,T), (3,T), (4,T), (5,T)		2	B2 for listing 10 outcomes with no extras (B1 for listing 4 additional outcomes, ignore repeats or extras)
	(b)		$\dfrac{1}{10}$	1	B1ft for $\dfrac{1}{10}$ o.e. or 1/their total Accept decimals or percentages
3	(a)		5	1	B1 cao
	(b)	87 – 46	41	2	M1 for 87 − 46, (accept 46 to 87 and 46 − 87) A1 cao

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5381F/05 - Section B					
Question		Working	Answer	Mark	Notes
4	(a)		No time period No response box for 0 Need smaller class intervals	2	B2 for 2 of the 3 reasons (B1 for 1 reason)

	(b)		Comment
			on sample
				1	B1 for sample too small
					    or all same age group
					    or same gender

5			Points plotted at
			
			(105,5), (115,9),
			(125,14), (135,24),
			(145,8)
			
			and joined with
			line segments
				2	B2 cao for plotting correct points ± 1 sq
					    and joining with line segments
					
					    (B1 for points plotted correctly at midpoints of intervals
					      or joining points with line segments at the correct
					        heights and consistent within the class interval
					        (including end values)
					      or correct frequency polygon with one point
					        incorrect)
					      or correct frequency polygon with first and last
					        point joined
					
					NB Ignore any histogram drawn and any part of frequency
					    polygon outside range of first and last points plotted

5381H/06 - Section A					
Question		Working	Answer	Mark	Notes
1			4 | 6 8 5 | 1 2 8 6 | 0 3 4 6 8 7 | 4 7 8 9 8 | 7	3	M1 for unordered leaves (condone two errors or omissions) A1 for a fully correct ordered stem and leaf diagram B1 for key, eg 4|6 means 46
2	(a)		Positive	1	B1 cao
	(b)		Line of best fit	1	B1 for a straight line passing between (65, 160) and (65, 166) and between (80, 178) and (80, 184)
	(c)		173 − 176	1	B1 for 173 − 176 or ft from a single line segment with positive gradient $\pm$ 1 full (2mm) square
3	(a)		82	2	M1 for (99 + 63 + 92 + 74) ÷ 4 or 328 ÷ 4 A1 cao
	(b)		Decreasing	1	B1 for decreasing oe

	(c)	Heights
		= 5, 20, 40, 75, 100
			Correct cumulative
			frequency graph
				2	B2 for fully correct cumulative frequency graph
					  (Ignore any part of graph outside range of points)
					
					(B1 for 4 or 5 points plotted correctly $\pm$ 1 full (2mm) square
					  at the end of interval
					
					  or for 4 or 5 points plotted not at end
					    but consistent within each interval and joined)

	(d)		640 − 680	1	B1 for 640 − 680 or ft (dep on graph being cf) for reading from graph at 50 $\pm$ 1 full (2mm) square

5381H/06 – Section A					
Question	Working		Answer	Mark	Notes
4	$40 \leq t < 50$ fd 1.6 $50 \leq t < 55$ fd 3.6 $55 \leq t < 65$ fd 3.2 $65 \leq t < 80$ fd 2 $80 \leq t < 100$ fd 1.2			3	B3 for 5 correct histogram bars $\pm$ ½`square   AND       frequency density numbered appropriately      or       key and consistent scaling  (B2   for 5 correct histogram bars $\pm$ ½`square **or** all heights correct with frequency density numbered appropriately with one error in numbering **or** 3 or 4 histogram bars correct AND frequency density numbered appropriately or key and consistent scaling) (B1 for 4 histogram bars in correct proportion, no numbering **or** 2 or more frequency densities correctly **or** 2 or more histogram bars in correct proportion with appropriate numbering on the f.d. axis)

5381H/06 – Section B					
Question		**Working**	**Answer**	**Mark**	**Notes**
1	(a)		0.2	2	M1 for $1-(0.5+0.3)$ A1 for 0.2 oe **SC** Award M1A0 for an answer of 0.92
	(b)	0.3×50	15	2	M1 for 0.3×50 oe A1cao **SC** Award B1 for $\dfrac{15}{50}$ on the answer line if M0 scored
2	(a)		No time period No response box for 0 Need smaller class intervals	2	B2 for 2 of the 3 reasons (B1 for 1 reason)
	(b)		Comment on sample	1	B1 for sample too small or all same age group or same gender
3	(a)	 0 10 20 30 40 50 60 Time in minutes	Box plot	2	B1 for ends of whiskers at 0 and 41 (with an appropriate box) B1 for ends of box at 2 and 18 with median at 8
	(b)		2 comparisons	2	B2 for two comparisons with at least one on spread (B1 for one comparison of spread or one comparison of values)

5381H/06-Section B				
Question	**Working**	**Answer**	**Mark**	**Notes**
4	$(\frac{5}{10} \times \frac{7}{10})\ +\ (\frac{5}{10} \times \frac{1}{10})$ $+\ (\frac{3}{10} \times \frac{2}{10})\ +\ (\frac{3}{10} \times \frac{1}{10})$ $+\ (\frac{2}{10} \times \frac{2}{10})\ +\ (\frac{2}{10} \times \frac{7}{10})$ $=\ \dfrac{35+5+6+3+4+14}{100}$ **OR** $1 - [(\frac{5}{10} \times \frac{2}{10}) + (\frac{3}{10} \times \frac{7}{10}) +$ $(\frac{2}{10} \times \frac{1}{10})]$ $= 1 - \dfrac{10+21+2}{100}\ =\ 1 - \dfrac{33}{100}$	$\dfrac{67}{100}$	4	**M1** for a tree diagram with at most 2 errors or one of $(\frac{5}{10} \times \frac{7}{10})$ or $(\frac{5}{10} \times \frac{1}{10})$ etc **M1** for 5 out of 6 correct pairings of different colours or 2 out of 3 correct pairings of same colours or 8 out of 9 correct pairings of all colours **M1** (dep on M2) for adding 5 or 6 correct pairings of different colours or $1 -$ (2 or 3 correct pairings of same colours) **A1** for $\dfrac{67}{100}$ oe **SC** All correctly done but 2nd spinner all $\dfrac{x}{9}$ Award M1 for a "correct tree" M1 for adding 5 or 6 "correct pairings" of different colours or $1 -$ (2 or 3 "correct pairings" of same colours) M0 A0 (answer = 67/90)

UNIT 2   STAGE 1   5382F 07

Question	1	2	3	4	5	6	7	8	9	10
Answer	D	B	D	C	D	B	C	E	A	D
Question	11	12	13	14	15	16	17	18	19	20
Answer	C	B	B	A	C	E	A	C	E	D
Question	21	22	23	24	25					
Answer	A	B	C	B	E					

UNIT 2   STAGE 1   5382H 08

Question	1	2	3	4	5	6	7	8	9	10
Answer	A	E	B	C	C	B	E	C	D	B
Question	11	12	13	14	15	16	17	18	19	20
Answer	C	E	D	C	E	A	E	B	D	A
Question	21	22	23	24	25					
Answer	D	A	B	D	C					

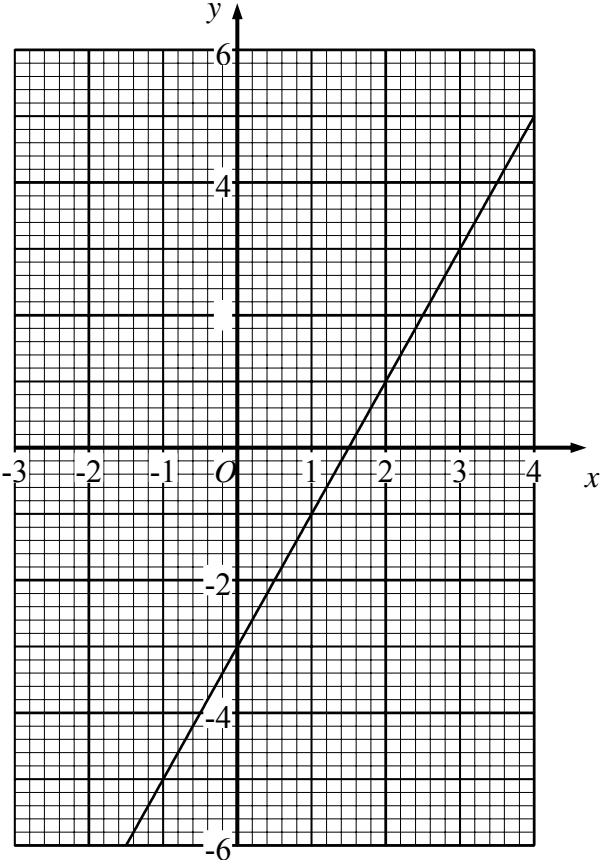| 5383F/09					
Question		**Working**	**Answer**	**Mark**	**Notes**
1	(a)		36	1	B1 cao accept answer in words, ignore spelling
	(b)		15	1	B1 cao accept answer in words, ignore spelling
	(c)		1000	1	B1 cao accept answer in words, ignore spelling
2		34 -15 + 17	36	2	M1 34 -15 + 17 or 34 + 2 or 34 + 17 – 15 oe or sight of 19 or 51 A1 cao (accept if 36p seen) B1 SC for 2 seen as their answer
3	(a)		0.25	1	B1 cao
	(b)		5	1	B1 cao
4	(a)		Radius	1	B1 ignore spelling
	(b)		Tangent	1	B1 ignore spelling
5	(a)	180 – 56 – 56	68	2	M1 for use of two base angles in an isosceles triangle or sight of 56 marked on diagram for angle *C*. This may be given for 112° seen A1 cao
	(b)	Base angles of isosceles triangle are equal Sum of angles in a triangle is 180° (oe)	Full reasons	1	B1 for Two(base) angles or B and C (in an isosceles triangle are) equal or two equal sides so two equal angles or equal angles are opposite equal sides **and** (Angles) in a triangle (add to) 180°

Question		Working	Answer	Mark	Notes
6	(a)		1.5 – 2.0	1	B1 1.5 – 2.0m inclusive (accept imperial equivalent, where units have been changed in the range 5'6" to 6'6")
	(b)		4.5 – 6.0	2	M1 ft from their evidence of use of man as a scale in the range 2.5 to 3 (With or Without Working) A1 ft from (a) or 4.5 – 6.0 inclusive
7	(a)		20	1	B1 cao
	(b)		25	1	B1 accept answer in range $24 \le t \le 26$
	(c)	90-40	50	2	M1 picks 10th and 35th seconds ft ± 1 square, can be implied by sight of 90 ± 2 **or** 40 ± 2, or marks on the graph at (10, 40) **and** (35, 90) A1 (48 to 52 inclusive)
8	(a)	$4(2x+5)+2(3x-2)$ $8x+20+6x-4$	$14x+16$	2	M1 for either $8x+20$ or $6x-4$ or $4 \times 2x + 4 \times 5$ or $2 \times 3x - 2 \times 2$ or 14x or $+ 16$ A1 for $14x + 16$
	(b)		$y(y-4)$	1	B1
9	(a)	$\dfrac{26.4+8.2}{\sqrt{5.76}} = \dfrac{34.6}{2.4}$	14.4166(6667)	2	B2 14.4166(6667) accept $\dfrac{173}{12}$ or $14\dfrac{5}{12}$ or $14.41\dot{6}$ (B1 for 34.6 or 2.4 seen)
	(b)		14.42	1	B1 ft from "14.4166…" assuming original is to 3 d.p. or more

Question		Working	Answer	Mark	Notes
1	(a)	x: −2, −1, 0, 1, 2, 3 / y: −7, **−5**, −3, −1, **1**, 3	Table	2	B2 for 2 correct entries (B1 for1 correct entry)
	(b)		Graph	2	B2 for straight line from (-2, –7) to (3, 3) (B1 for 5 of their points correctly plotted **or** single straight line passing through (0, –3) from x = -2 to +3 **or** for a straight line with gradient 2 from x = -2 to +3 **or** correct straight line that passes through 3 correct points)
2		$\dfrac{15}{100} \times 200$ or 20 + 10	30	1	B1 cao
3	(a)	$\dfrac{26.4 + 8.2}{\sqrt{5.76}} = \dfrac{34.6}{2.4}$	14.4166(666)	2	B2 14.4166(6667) accept $\dfrac{173}{12}$ or $14\dfrac{5}{12}$ or $14.41\dot{6}$ (B1 for 34.6 or 2.4 seen)
	(b)		14.42	1	B1 ft from "14.4166…" assuming original is to 3 d.p. or more
4	(a)	$4(2x + 5) + 2(3x - 2)$ $8x + 20 + 6x - 4$	$14x + 16$	2	M1 for either $8x + 20$ or $6x - 4$ or $4 \times 2x + 4 \times 5$ or $2 \times 3x - 2 \times 2$ or 14x or + 16 A1 for $14x + 16$
	(b)	$x^2 + 5x + 8x + 40$	$x^2 + 13x + 40$	2	B2 cao (B1 for 3 or 4 of the 4 terms correct, can be implied by $x^2 + 13x + n$ or $nx^2 + 13x + 40$)
5			3.2×10^{10}	2	B2 cao (B1 3.2×10^n, n an integer $\neq 10$, or 32×10^9 or 32 000 000 000 or 3.2 exp10 or $3.2^{\times 10^{10}}$ seen)

Question		Working	Answer	Mark	Notes
6	(a)	$5^3 - 5 \times 3 \times 3$ 125 – 45 $(5 \times 5 - 3 \times 3) \times 5$ $(25 - 9) \times 5$ 16×5	80	2	M1 for attempt to find volume of cube (e.g. 5 × 5 × n where $n \neq 6$) and subtract volume of the hole (e.g. 3 × 3 × n where $n \neq 6$) (needs to be dimensionally correct) A1 cao **Alternative method** M1 for attempt to find area of the cross section and multiply by the depth of the prism (depth $\neq 6$) A1 cao
	(b)	64 ÷ 80	0.8	2	M1 ft 64 ÷ "80" A1 ft (to 2 sf or better)
7		$SOT = 360 - (90+90+44)$ $= 136°$ $SOT = 360 - (90+90+44)$ $= 136°$ 136 – 90 $SOT = 360 - (90+90+44)$ $= 136°$ 136 ÷ 2 – 22	46°	4	**Using triangle *SOP*** B1 recognition of tangent/radius property (can be awarded for a right angle marked on the diagram) M1 180 – 90 – 22 or sight of 68° M1 SOP – 22 A1 cao **Using quadrilateral SPTO** B1 recognition of tangent/radius property (can be awarded for a right angle marked on the diagram) M1 360 – (2× 90 + 44) or sight of 136° M1 *SOT* – 90 A1 cao **Alternative method for quadrilateral *SPTO*** B1 recognition of tangent/radius property (can be awarded for a right angle marked on the diagram) M1 360 – (2× 90 + 44) or sight of 136° M1 for 136 ÷ 2 – 22 A1 cao

Question		Working	Answer	Mark	Notes
8	(a)		$(x+y)(x-y)$	1	B1 cao
	(b)	$((x+1)-(y+1))\times$ $((x+1)+(y+1))$ $x^2+2x+1-(y^2+2y+1)$ $=x^2-y^2+2x-2y$ $=$ $(x-y)(x+y)+2(x-y)$	$(x-y)(x+y+2)$	2	M1 for attempt to replace x by $(x+1)$ and y by $(y+1)$ A1 cao **Alternative** M1 for expanding both brackets to get x^2+2x+1 ***and*** y^2+2y+1 A1 cao

Graph for Q01b