

International GCSE in Mathematics A - Paper 1F mark scheme

Question	Working	Answer	Mark	AO	Notes
1	a	15 or 31	4	AO1	B1 for 15 or 31 or both
	b	24 or 36		AO1	B1 for 24 or 36 or both
	c	36 or 64		AO1	B1 for 36 or 64 or both
	d	2 or 31		AO1	B1 for 2 or 31 or both
2	a			AO1	M1 any fraction equivalent to $\frac{64}{100}$
	b	$\frac{16}{25}$	2		A1
	c	0.09 14	1 1	AO1 AO1	B1 B1
3	a	Thursday	1	AO3	B1
	b	$24 \div 3 \times 5$	2	AO3	M1 for $24 \div 3 (=8)$
	c	2 : 3.25 oe or 2×8 : 3.25×8		AO1	A1 M1 A1 any correct ratio ft from '8' in (b) accept $1 : \frac{13}{8}$ oe
4	a	22, 26	1	AO1	B1
	b	add 4	1	AO1	B1
	c	42	1	AO1	B1
	d	reason	1	AO1	B1 e.g. no numbers in sequence are odd numbers; $4n - 2 = 95$ gives $n = 24.25$ which is not an integer;

Question	Working	Answer	Mark	AO	Notes
5 a b c d		2	1	AO2	B1
		20	1	AO2	B1
		16	1	AO2	B1
		correct reflection	2	AO2	B2 B1 for reflection in a different vertical line
6	$25 \div 3.95 (=6.32\dots)$			AO1	M1 accept repeated addition or repeated subtraction from 25
	$25 - '6' \times 3.95$				M1 A1
7 a b		1.3(0)	3		A1
		$3c + 9m$	2	AO1	M1 A1 for $3c$ or $9m$ for $3c + 9m$ or $3(c + 3m)$
	$5x = 4 + 9$	2.6 oe	2	AO1	M1 A1
8 a b c		195	1	AO1	B1 cao
	$249 \div 3$	83	2	AO1	M1 A1 cao
		$d = 3w$	2	AO1	B2 B1 for $d =$ linear expression in w B1 for $3w$ oe SC: B1 for $w = \frac{d}{3}$ oe

Question	Working	Answer	Mark	AO	Notes
9	$180 - 132 (=48)$ $180 - 2 \times 48'$	84	5	AO2	M1 M1 A1 B2 Angles in a triangle sum to 180° , base angles of an isosceles triangle are equal, angles on a straight line sum to 180° (B1 for any correct reason)
10	$0.8 \times 0.3 = 0.24$ or $108 \div 1000 (=0.108)$ '0.108' \div '0.24'	0.45	3	AO2	M1 M1 A1 dep
11		13.488(56...)	2	AO1	B2 B1 for 144.76 or 10.73...
a		13.5	1	AO1	B1 ft from (a) from 4 or more sig figs
b					

Question	Working	Answer	Mark	AO	Notes														
12	<table border="1"> <tr> <td>x</td> <td>-2</td> <td>-1</td> <td>0</td> <td>1</td> <td>2</td> <td>3</td> </tr> <tr> <td>y</td> <td>-10</td> <td>-7</td> <td>-4</td> <td>-1</td> <td>2</td> <td>5</td> </tr> </table>	x	-2	-1	0	1	2	3	y	-10	-7	-4	-1	2	5	$y = 3x - 4$ drawn from $x = -2$ to $x = 3$	4	AO1	<p>B4 For a correct line between $x = -2$ and $x = 3$</p> <p>B3 For a correct straight line segment through at least 3 of $(-2, -10)$ $(-1, -7)$ $(0, -4)$ $(1, -1)$ $(2, 2)$ $(3, 5)$ OR for all of $(-2, -10)$ $(-1, -7)$ $(0, -4)$ $(1, -1)$ $(2, 2)$ $(3, 5)$ plotted but not joined</p> <p>B2 For at least 2 correct points plotted OR for a line drawn with a positive gradient through $(0, -4)$ and clear intention to use of a gradient of 3 (eg. a line through $(0, -4)$ and $(0.5, -1)$)</p> <p>B1 For at least 2 correct points stated (may be in a table) OR for a line drawn with a positive gradient through $(0, -4)$ but not a line joining $(0, -4)$ and $(3, 0)$ OR a line with gradient 3</p>
x	-2	-1	0	1	2	3													
y	-10	-7	-4	-1	2	5													

Question	Working	Answer	Mark	AO	Notes
13	a			AO3	M1
	b	0.1 oe	2	AO3	A1 M1 A1
14	a	14	2		B1
	b	10g + 35 -2, -1, 0, 1, 2	1 2	AO1 AO1	B2 B1 for -3, -2, -1, 0, 1, 2 or -2, -1, 0, 1
15				AO1	M1
					M1 for $149 \times 0.76 (=113...)$ or 113.24 (=174...)
					M1 for "174..." - 164.78 (=9.6096)
					M1 for "9.6096" \div 1.54
16		6.24	4		dep on at least one previous M mark; accept "107" - "113.24"
				AO2	A1
		800	3		M2 M1 for $7800 \div 9.45$ or $7800 \div 585$ or 13.3....

Question	Working	Answer	Mark	AO	Notes
17	$28 \div (6 - 4) (=14)$ $"14" \times 3 (=42)$	42	3	AO1	M1 or use of cancelled ratios (eg $3 : 6 : 4 = 0.75 : 1.5 : 1$) M1 (dep) $28 \div 0.5 (=56)$ or cancelled ratios, (e.g. 56×0.75) or M2 for $28 \div \frac{2}{3}$ oe A1
18	a $(12 \times 2.5) + (6 \times 7.5) + (4 \times 12.5) + (6 \times 17.5) + (14 \times 22.5) + (18 \times 27.5)$ or $30 + 45 + 50 + 105 + 315 + 495$ or 1040 '1040' $\div 60$	$25 < d \leq 30$ $17\frac{1}{3}$	1	AO3	B1 B1 identifies 25 \rightarrow 30 class M2 M1 for frequency \times consistent value within interval NB. Products do not need to be added Condone one error M1 A1 accept 17.3(33...)
c		$\frac{32}{60}$ oe	2	AO3	M1 for $\frac{a}{60}$ with $a < 60$ or $\frac{32}{b}$ with $b > 32$ A1

Question	Working	Answer	Mark	AO	Notes
19	<p><u>Working with all 12 boxes</u> $12 \times 15 (=180)$ or $12 \times 12 (=144)$ $12 \times 12 \times \frac{3}{4} \times 1.6$ oe ($=172.8$) $12 \times 15 \times 1.15$ oe ($=207$) or 180×0.15 oe ($=27$) $\frac{207 - 172.8}{36}$ or $\frac{34.2}{36}$ or $\frac{27 + (180 - 172.8)}{36}$</p>	0.95	5	AO1	<p>M1 for correct total cost or correct total number of melons (either may appear as part of another calculation)</p> <p>M1 for revenue from all full price melons sold</p> <p>M1 for total revenue or total profit</p> <p>M1 dep on M3</p> <p>A1 cao</p>
	<p><u>Alternative – working with one box</u> $15 \div 12 (=1.25)$ or $12 \times \frac{3}{4} (=9)$ $12 \times \frac{3}{4} \times 1.6$ oe ($=14.4$) $15 \times 1.15 (=17.25)$ $\frac{17.25 - 14.4}{3}$ or $\frac{2.85}{3}$</p>	0.95	5		<p>for price of 1 melon or number of full price melons</p> <p>M1 for revenue from all full price melons sold</p> <p>M1 for total revenue from one box</p> <p>M1 dep on M3</p> <p>A1 cao</p>

Question	Working	Answer	Mark	AO	Notes
20	Circular arc, centre B , to intersect both lines AB and BC Equal length arcs, from intersections on each line, meeting to give a point on the bisector	correct bisector	2	AO2	M1 A1 dep on M1. Full construction shown.
21	a	$9e^2f(2e + 5f^3)$	2	AO1	M1 Any correct partially factorised expression A1
	b	$(x + 6)(x + 2)$ $(x - 6)(x + 2)$	2	AO1	M1 or correct substitution into quadratic formula (condone one sign error) M1 $\frac{4 \pm \sqrt{64}}{2}$ A1 dep. on at least M1
22	$\cos 35 = \frac{PR}{17.6}$ $17.6 \times \cos 35$	$6, -2$ 14.4	3	AO2	M1 M1 A1 14.4 ~ 14.42
23	$22.50 \div 15 (=1.5)$ or $100 \div 15$ (=6.6...) '1.5' $\times 100 (=150)$ or '6.6...' $\times 22.5(0)$	150	3	AO1	M1 } M2 for $22.5 \div 0.15$ M1 dep A1

Question	Working	Answer	Mark	AO	Notes
24		140 000	1	AO1	B1
a		Mars	1	AO1	B1
b	$1.2 \times 10^5 - 5 \times 10^4$ or			AO1	M1
c	120000 – 50000 or 70000 oe	7×10^4	2		A1
25	$\sqrt{9.5^2 - 7.6^2}$ or $\sqrt{90.25 - 57.76}$ or $\sqrt{32.49}$ or $\sqrt{32.5}$ (BC =) 5.7 $\frac{1}{2} \times 7.6 \times 5.7$ or 21.6(6) or 21.7			AO2	M1
	$\frac{1}{2} \times \pi \times \left(\frac{5.7}{2}\right)^2$ or 12.7(587...) or 12.8	34.4	5		A1
					dep on first M1 or eg. $ACB = \sin^{-1}\left(\frac{7.6}{9.5}\right)$ (= 53.1...) and $\frac{1}{2} \times 9.5 \times 5.7 \times \sin 53.1^\circ$ dep on first M1
					A1 for answer rounding to 34.4 ($\pi \rightarrow 34.4187... \quad 3.14 \rightarrow 34.4123...$)

