

## International GCSE in Mathematics A - Paper 2F mark scheme

Question	Working	Answer	Mark	AO	Notes
1	a	1407	1	AO1	B1
	b	2095	1	AO1	B1
	c	60	1	AO1	B1 accept tens, sixty
	d	1000	1	AO1	B1
2	a	× at 1	1	AO3	B1
	b	× at 0.5	1	AO3	B1
3	a	Berlin	1	AO1	B1
	b	1	1	AO1	B1
	c	-7	1	AO1	B1
	d	$(2 + -8) \div 2$ oe	2	AO1	M1 method to find midpoint A1
4	ai	$\frac{1}{30}$ oe	1	AO3	B1
	aii	0	1	AO3	B1
	b	$\frac{7}{10}$ oe	1	AO3	B1
5	a	9	1	AO1	B1
	b	11.8	1	AO1	B1
	c	0.6	1	AO1	B1

Question	Working	Answer	Mark	AO	Notes
6		B, G	1	AO2	BI
		F	1	AO2	BI
		D	1	AO2	BI
7	Line from $P$ at $50^\circ$ to base <b>or</b> arc from $Q$ of length 7.5 cm			AO2	M1 A1
8		correct triangle	2		
		6.8	1	AO1	BI
		729	1	AO1	BI
		2.7	1	AO1	BI
9		$4m$	1	AO1	BI
		$18kp$	1	AO1	BI
		4	1	AO1	BI
		$-43$	2	AO1	M1 A1 M1
			3	AO1	M1 A1
			1	AO1	BI
f		$8.25$ oe	3		M1 A1
		$5(c+6)$			isolate term in $r$
			1	AO1	BI

Question	Working	Answer	Mark	AO	Notes
<b>10</b>	<b>a</b>			AO1	M1 M1 dep
	<b>b</b>	220	3	AO2	M1 A1 clear evidence of method to work out time interval
<b>11</b>	<b>a</b>	3 hours 20 mins	2		A1 accept 200 minutes
				AO3	M1 M1
	<b>b</b>	520	3		A1 M1
		54	2	AO3	A1
<b>12</b>	$5 \times 3 (=15)$ <b>or</b> $7 \times (11 - 5)(=42)$ <b>or</b> $11 \times 7 (=77)$ <b>or</b> $5 \times (7-3)(=20)$ <b>or</b> $11 \times 3 (=33)$ <b>or</b> $(11-5) \times (7-3)(=24)$ $5 \times 3 + 7 \times (11 - 5)(=57)$ <b>or</b> $11 \times 7 - 5 \times (7-3)(=57)$ <b>or</b> $11 \times 3 + (11-5) \times (7-3)(=57)$ '57' $\div 2$ (28.5) '29' $\times 24.8$	719.20		AO1, AO2	M1 method to find area of part of floor  M1 complete method to find area  M1 dep on at least M1

Question	Working	Answer	Mark	AO	Notes
<b>13</b>	$345 \div 200 (=1.725)$ or $345 \times 100 (=34500)$ '1.725' $\times 100$ or '34500' $\div 200$	172.5	3	AO2	M1 Division by 200 or conversion of units M1 Division by 200 and conversion of units A1
<b>14</b>	$(6 + 8) \div 2 (=7)$ or $(-5 + 3) \div 2 (= -1)$	(-1, 7)	2	AO1	M1 A1
<b>15</b>	<b>a</b> $900 \div 6 \times 15$ oe <b>b</b> $3 \times 1000 \div 750 \times 6$	2250 24	2 2	AO1 AO1	M1 A1 M1 A1
<b>16</b>	$2 \times 2 \times 5$ or $2 \times 3 \times 5$ or $3 \times 3 \times 5$ or two of 20, 40, 60 ... 30, 60, 90 ... 45, 90, 105 $2 \times 2 \times 5$ and $2 \times 3 \times 5$ and $3 \times 3 \times 5$ or all of 20, 40, 60, 80 ... 180 30, 60, 90 ... 180 45, 90, 105 ... 180	180	3	AO1	M1 for one of 20, 30, 45 written as product of prime factors or list of at least 3 multiples of any two of 20, 30, 45 M1 for 180 or $2 \times 2 \times 3 \times 3 \times 5$ oe A1

Question	Working	Answer	Mark	AO	Notes
17		$7n - 5$ oe	2	AO1	M1 for $7n + k$ (k may be zero) A1
18	$\frac{1}{2} \times (10 + 14) \times 9$ oe (= 108) ' $108' \times 6$ (=648) ' $648' \times 0.7$	453.6	4	AO2	M1 for area of cross section  M1 (dep on previous M1) for volume of prism M1 (independent) A1 accept 454
19	<b>a</b> <b>b</b> <b>c</b> <b>d</b> $5x + 35 = 2x - 10$ or $x + 7 = \frac{2x}{5} - \frac{10}{5}$ eg. $5x - 2x = -10 - 35$ or $7 + \frac{2x}{5} = \frac{x}{5} + x$	$p^9$ $m^{-12}$ 1	1 1 1	AO1 AO1 AO1 AO1	B1 B1 B1 M1 for removing bracket or dividing all terms by 5  M1 for isolating x terms in a correct equation
		-15	3		A1 dep on M1

Question	Working	Answer	Mark	AO	Notes
20	$14000 \times 4 (=56000)$ <b><math>0.075 \times '56000' (=4200)</math> or</b> $0.075 \times 14000 (=1050)$ <b><math>'56000' - '42000'</math> or</b> $14000 - '1050'$	51 800	4	AO1	M1 NB. multiplication by 4 may occur before or after percentage decrease M1 } M2 for $0.925 \times '56000'$ or } $0.925 \times 14000$ M1 (dep) A1
21		triangle with vertices $(3, -1)$ $(3, -4)$ $(5, -4)$ Rotation centre $(-3, 0)$ $90^\circ$ anticlockwise	1  3	AO2  AO2	B1 B1 B1 B1 accept $+90^\circ$ , $270^\circ$ clockwise, $-270^\circ$ NB. If more than one transformation then no marks can be awarded

Question	Working	Answer	Mark	AO	Notes		
<b>22</b>	<b>a</b> $4 \times 15 (=60)$ <b>or</b> $\frac{a+b+c+d}{4} = 15$ <b>or</b> $4 \times 15 = 39$		2	AO3	M1		
	<b>b</b> $d - a = 10$ <b>or</b> $a = 11$ <b>or</b> $a = "21" - 10$ <b>or</b> $b + c = 39 - 11 = 28$	21	2	AO3	A1 M1	ft from (a) (can be implied by 11, b, c, 21 <b>OR</b> $a, b, c, d$ with $b + c = 28$ )	
<b>23</b>	$0.02 \times 40\,000 (=800)$ <b>or</b> $1.02 \times 40\,000 (=40800)$ <b>or</b> 2400 "40800" $\times 0.02 (=816)$ <b>and</b> "41616" $\times 0.02 (=832.32)$ <b>OR</b> 2448.32	14		AO1	M1 M1	M2 for $40\,000 \times 1.02^3$	
<b>24</b>	$3x + y = 13$ <b>or</b> $6x + 2y = 26$ $- 3x - 6y = 27$ $+ x - 2y = 9$ eg $3x - 2 = 13$ <b>or</b> $15 + y = 13$	42448.32	3	AO1	A1	M1 M1	multiplication of one equation with correct operation selected <b>or</b> rearrangement of one equation with substitution into second
		5, -2	3			A1	(dep) correct method to find second variable for both solutions dependent on correct working

Question	Working	Answer	Mark	AO	Notes
<b>25</b> <b>a</b>	$\frac{10}{18} + \frac{3}{18}$ <b>or</b> $\frac{30}{54} + \frac{9}{54}$ e.g.	answer given	2	AO1	M1 for two fractions with common denominator with at least one numerator correct
	<b>b</b>				$\frac{14}{3} \div \frac{32}{9}$ $\frac{14}{3} \times \frac{9}{32}$ <b>or</b> $\frac{126}{27} \div \frac{96}{27}$ <b>or</b> $\frac{42}{9} \div \frac{32}{9}$
<b>26</b>	$(6-2) \times 180 (=720)$ '720' – (86 + 123 + 140 + 105) (=266) <b>or</b> '720' – 454 (=266) '266' ÷ 2	133	3	AO2	A1 correct answer from correct working
					M1 complete method to find sum of interior angles
					M1 dep on 1 <sup>st</sup> method mark
					M1 dep on 1 <sup>st</sup> method mark
		4			A1