



Mark Scheme (Results)

Summer 2026

Pearson Edexcel International GCSE Mathematics A
4MA1/1F

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General Marking Guidance

- All candidates must receive the same treatment. Examiners must mark the first candidate in exactly the same way as they mark the last.
- Mark schemes should be applied positively. Candidates must be rewarded for what they have shown they can do rather than penalised for omissions.
- Examiners should mark according to the mark scheme not according to their perception of where the grade boundaries may lie.
- There is no ceiling on achievement. All marks on the mark scheme should be used appropriately.
- All the marks on the mark scheme are designed to be awarded. Examiners should always award full marks if deserved, i.e. if the answer matches the mark scheme.

Examiners should also be prepared to award zero marks if the candidate's response is not worthy of credit according to the mark scheme.

- Where some judgement is required, mark schemes will provide the principles by which marks will be awarded and exemplification may be limited.
- When examiners are in doubt regarding the application of the mark scheme to a candidate's response, the team leader must be consulted.
- Crossed out work should be marked UNLESS the candidate has replaced it with an alternative response.

- **Types of mark**

- M marks: method marks
- A marks: accuracy marks
- B marks: unconditional accuracy marks (independent of M marks)

- **Abbreviations**

- cao – correct answer only
- ft – follow through
- isw – ignore subsequent working
- SC - special case
- oe – or equivalent (and appropriate)
- dep – dependent

- indep – independent
- awrt – answer which rounds to
- eooo – each error or omission

- **No working**

If no working is shown then correct answers normally score full marks
If no working is shown then incorrect (even though nearly correct) answers score no marks.

- **With working**

If there is a wrong answer indicated on the answer line always check the working in the body of the script (and on any diagrams), and award any marks appropriate from the mark scheme.

If it is clear from the working that the “correct” answer has been obtained from incorrect working, award 0 marks.

If a candidate misreads a number from the question. Eg. Uses 252 instead of 255; method marks may be awarded provided the question has not been simplified. Examiners should send any instance of a suspected misread to review. If there is a choice of methods shown, mark the method that leads to the answer on the answer line; where no answer is given on the answer line, award the lowest mark from the methods shown.

If there is no answer on the answer line then check the working for an obvious answer.

- **Ignoring subsequent work**

It is appropriate to ignore subsequent work when the additional work does not change the answer in a way that is inappropriate for the question: eg. Incorrect cancelling of a fraction that would otherwise be correct.

It is not appropriate to ignore subsequent work when the additional work essentially makes the answer incorrect eg algebra.

Transcription errors occur when candidates present a correct answer in working, and write it incorrectly on the answer line; mark the correct answer.

- **Parts of questions**

Unless allowed by the mark scheme, the marks allocated to one part of the question CANNOT be awarded to another.

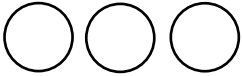
Question		Working	Answer	Mark	Notes
1 *	(a)		A cross at $\frac{1}{6}$	1	B1 cao
	(b)	Acceptable eg It only goes up to 6 The numbers on the dice are 6 or less Cannot land on a number above 6 The biggest number is 6 There are only 6 sides There are only 6 numbers It is a six sided dice There is no number 7 All the numbers are less than 7 Not acceptable eg The dice is fair The scale is less than 1 Because 6 is less than 7	Correct reason	1	B1 for a comment about the impossibility of rolling a 7 on a 1-6 die
					Total 2 marks

Question		Working	Answer	Mark	Notes
2 *	(a)		Beijing	1	B1 allow B or other shortened forms
	(b)		Madrid	1	B1 allow M or other shortened forms
					Total 2 marks

Question		Working	Answer	Mark	Notes
3 *	(a)		D	1	B1 cao
	(b)		sphere	1	B1 allow incorrect spelling if meaning is clear
	(c)		8	1	B1 cao
					Total 3 marks

Question		Working	Answer	Mark	Notes
4	(a)		Thirty two thousand (and) sixty	1	B1 accept thirty thousand, two thousand (and) sixty
	(b)		204 512	1	B1
	(c)		9500	1	B1
	(d)		8 hundredths	1	B1 tick in the correct box or unambiguously identified
	(e)		3.006, 3.06, 3.6, 3.601, 3.61	1	B1
					Total 5 marks

Question		Working	Answer	Mark	Notes
5	(a)		$5d$	1	B1
	(b)		$10m$	1	B1
	(c)		$18y$	1	B1
	(d)		6	1	B1
					Total 4 marks

Question		Working	Answer	Mark	Notes
6	(a)		dog 10 rabbit 5	2	B2 for both correct frequencies If not B2 then B1 for 1 correct frequency
	(b)		cat  fish 	2	B1 for correct number of symbols for cat B1 for correct number of symbols for fish
					Total 4 marks

Question		Working	Answer	Mark	Notes
7*	(a)	$360 - 85 - 60 - 90$ or $85 + 60 + 90 = 235$ and $360 - "235"$		2	M1
		<i>Correct answer scores full marks (unless from obvious incorrect working)</i>	125		A1
	(b)	$7a + 5a = 180$ or $12a = 180$ or $(a =) \frac{180}{12}$ or $(a =) \frac{180}{7+5}$ or $(7a =) 105$ or $(5a =) 75$		2	M1
		<i>Correct answer scores full mark (unless from obvious incorrect working)</i>	15		A1
					Total 4 marks

Question		Working	Answer	Mark	Notes
8 *	(a)		$\frac{3}{5}$	1	B1 cao
	(b)		20	1	B1 cao
	(c)		0.04	1	B1
					Total 3 marks

Question		Working	Answer	Mark	Notes
9	(a)		31 or 37	1	B1 award the mark for 31 or 37 with no additional incorrect numbers or for 31 and 37 with no additional incorrect numbers
	(b)		1156	1	B1
	(c)		17	1	B1
	(d)	$3 + 6 \times (2 + 5) = 45$	Brackets around $(2 + 5)$	1	B1 $3 + 6 \times (2 + 5) = 45$ with no incorrect brackets Condone $3 + (6 \times (2 + 5)) = 45$ which has extra brackets that are not incorrect
	(e)		– and $\times$	1	B1 for $12 - 2 \times 3 = 6$
					Total 5 marks

Question		Working	Answer	Mark	Notes
10	(a)		Correct table	3	B3 fully correct table If not B3 then B2 for 4 or 5 correct entries B1 for 2 or 3 correct entries
	(b)		$\frac{19}{52}$	2	B2 oe eg 0.36(538...) or 36(.53...) % rounded or truncated If not B2 then B1 for $\frac{19}{m}$ where $m > 19$ or $\frac{n}{52}$ where $n < 52$ or 19 : 52
					Total 5 marks

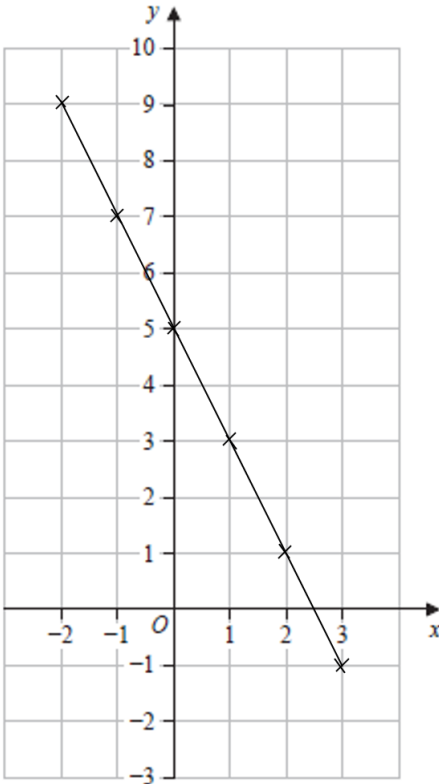
Question		Working	Answer	Mark	Notes
11	(a)	8.9285(71429) – 3.1622(7766)		2	M1 for 8.9285(71429) or 3.1622(776) or for an answer rounded or truncated to 2, 3 or 4 significant figures eg 5.7, 5.8, 5.76, 5.77, 5.766
		<i>Correct answer scores full marks (unless from obvious incorrect working)</i>	5.7662(93768)		A1 at least 4 decimal places rounded or truncated
	(b)		5.8	1	B1 ft from (a) provided 3 or more significant figures
					Total 3 marks

Question	Working	Answer	Mark	Notes
12*	$3 \times 1.45 (= 4.35)$ or $1.45 + 1.45 + 1.45 (= 4.35)$ or $2 \times 2.8(0) (= 5.6(0))$ or $2.8(0) + 2.8(0) (= 5.6(0))$ or $20 - 6.65 (= 13.35)$		4	M1
	eg $"4.35" + "5.6(0)" + 6.65 (= 16.6(0))$ oe or eg $"4.35" + 6.65 (= 11)$ oe or $"5.6(0)" + 6.65 (= 12.25)$ oe or $"4.35" + "5.6(0)" (= 9.95)$ oe or eg $20 - "4.35" - 6.65 (= 9)$ oe or $20 - "5.6(0)" - 6.65 (= 7.75)$ oe or $20 - "4.35" - "5.6(0)" (= 10.05)$ oe			M1 for adding all three or for adding any two of $"4.35"$ oe, $"5.6(0)"$ oe, 6.65 oe or for subtracting from 20 any two of $"4.35"$ oe, $"5.6(0)"$ oe, 6.65 oe
	$20 - "16.6(0)" (= 3.4(0))$ oe or $20 - "4.35" - "5.60" - 6.65 (= 3.4(0))$ oe or $"10.05" - 6.65 (= 3.4(0))$ oe			M1 for a fully correct method to find the cost of 2 kg of butter ($"4.35"$ and $"5.6(0)"$ to come from correct working)
	<i>Correct answer scores full marks (unless from obvious incorrect working)</i>	1.7(0)		A1 SC B1 for 9.1(0) or 4.55
				Total 4 marks

Question		Working	Answer	Mark	Notes
13*	(a)		$5(3y - 4)$	1	B1 oe $5(-4 + 3y)$
	(b)	$5w - 3w = -7 - 2$ oe or $2w = -9$ oe or $2 + 7 = -5w + 3w$ oe or $9 = -2w$ oe		2	M1
		<i>Correct answer scores full marks (unless from obvious incorrect working)</i>	-4.5		A1 oe eg $-\frac{9}{2}$ or $-4\frac{1}{2}$
					Total 3 marks

Question		Working	Answer	Mark	Notes
14		eg 0.18×2600 or $\frac{18}{100} \times 2600$ or $\frac{2600}{100} \times 18$ or $260 + 26 \times 8$		2	M1 for method to find 18% of 2600
		<i>Correct answer scores full marks (unless from obvious incorrect working)</i>	468		A1
					Total 2 marks

Question		Working	Answer	Mark	Notes		
15		$360 - 314 (= 46)$		4	M1	angles may be marked on the diagram	M2 for $\frac{314 - 180}{2}$
		$180 - \text{“}46\text{”} (= 134)$			M1	do not award this mark for $314 - 180 (=134)$	
		<i>Correct angle scores 3 marks (unless from obvious incorrect working)</i>	67		A1		
					B1	dep on M2 for two correct reasons from (i) <u>angles</u> around a <u>point</u> add up to 360° (ii) <u>angles</u> in a <u>triangle</u> add to 180° or angles in a <u>triangle</u> add to <u>180°</u> (iii) base angle in an <u>isosceles</u> triangle (are equal) OR dep on M2 for The <u>exterior angle</u> of a triangle is <u>equal</u> to the sum of the <u>interior opposite angles</u>	
					Total 4 marks		

Question	Working	Answer	Mark	Notes														
16	<table><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>9</td><td>7</td><td>5</td><td>3</td><td>1</td><td>-1</td></tr></table> <p>$(-2, 9) (-1, 7) (0, 5) (1, 3) (2, 1)(3, -1)$</p> 	x	-2	-1	0	1	2	3	y	9	7	5	3	1	-1	Correct line between $x = -2$ and $x = 3$	3	B3 for a correct line between $x = -2$ and $x = 3$ (B2 for a correct straight line segment through at least 3 of $(-2, 9) (-1, 7) (0, 5) (1, 3) (2, 1)(3, -1)$ or for all of $(-2, 9) (-1, 7) (0, 5) (1, 3) (2, 1)(3, -1)$ plotted but not joined) (B1 for at least 2 correct points stated (may be in a table) or plotted or for a line drawn with a negative gradient through $(0, 5)$ or for a line with a gradient of -2)
x	-2	-1	0	1	2	3												
y	9	7	5	3	1	-1												
				Total 3 marks														

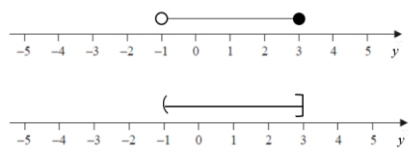
Question		Working	Answer	Mark	Notes
17		$175 \div 25 (= 7)$ or $25 \times h = 175$		4	M1 method to find height of the parallelogram
		$\frac{11+25}{2} \times "7" (= 126)$ or $\frac{11+25}{2} \times [\text{their height of parallelogram}]$			M1 method to find the area of the trapezium ft their value for the height of the parallelogram if clearly identified on the diagram or in working space
		$\frac{"126"}{175} (= 0.72)$ or $\frac{"126"}{175} \times 100$ or $\frac{[\text{their area of trapezium}]}{175} (\times 100)$			M1 dep on M1 method to find the area of the trapezium as a fraction or percentage of the area of the parallelogram ft their value for the area of the trapezium as long as clearly identified as an area on the diagram or in the working
		<i>Correct answer scores full marks (unless from obvious incorrect working)</i>	72		A1
					Total 4 marks

Question	Working	Answer	Mark	Notes
18*	$\frac{29}{7}(-)\frac{13}{5}$ or $(4)\frac{5}{35}(-)(2)\frac{21}{35}$ oe or $(4)\frac{5a}{35a}(-)(2)\frac{21a}{35a}$ oe		3	M1 for correct improper fractions or fractional part of numbers written correctly over a common denominator
	eg $\frac{145}{35} - \frac{91}{35}$ or $\frac{29 \times 5}{7 \times 5} - \frac{13 \times 7}{5 \times 7}$ or $\frac{29 \times 5 - 13 \times 7}{5 \times 7}$ or $\frac{145a}{35a} - \frac{91a}{35a}$ or $4\frac{5}{35} - 2\frac{21}{35} = 2\frac{-16}{35}$ oe or $2 + \frac{5}{35} - \frac{21}{35} = 2 - \frac{16}{35}$ oe or $3\frac{40}{35} - 2\frac{21}{35}$			M1 for correct fractions with a common denominator with subtraction sign present or for working with mixed numbers to the stage shown implies the first M1
	eg $\frac{145}{35} - \frac{91}{35} = \frac{54}{35} = 1\frac{19}{35}$ or $4\frac{5}{35} - 2\frac{21}{35} = 2\frac{-16}{35} = 1\frac{19}{35}$ or $4\frac{5}{35} - 2\frac{21}{35} = 3\frac{40}{35} - 2\frac{21}{35} = 1\frac{19}{35}$ If common denominator is not 35 then cancelling must be shown eg $\frac{290}{70} - \frac{182}{70} = \frac{108}{70} = \frac{54}{35} = 1\frac{19}{35}$ oe or $\frac{290}{70} - \frac{182}{70} = \frac{108}{70} = 1\frac{38}{70} = 1\frac{19}{35}$ oe or $4\frac{10}{70} - 2\frac{42}{70} = 2\frac{-32}{70} = 2\frac{-16}{35} = 1\frac{19}{35}$ oe	A fully correct solution shown		A1 dep on M2 for a correct answer from fully correct working If a student shows that $1\frac{19}{35} = \frac{54}{35}$ and has working that shows $LHS = \frac{54}{35}$ this can gain full marks NB: use of decimals scores no marks unless as a check
	Working required			Total 3 marks

Question	Working	Answer	Mark	Notes
19*	eg $\cos 65 = \frac{x}{10}$ or $\tan 65 = \frac{10 \sin 65}{x}$ or $\sin(90 - 65) = \frac{x}{10}$ or $\frac{x}{\sin(90 - 65)} = \frac{10}{\sin 90}$ or $(x^2 =) 10^2 - (10 \sin 65)^2 (= 17.8(60...))$ or $(x^2 =) 10^2 - (9.06(307...))^2 (= 17.8(60...))$ or $(x^2 =) 10^2 + (10 \sin 65)^2 - (2 \times 10 \times 10 \sin 65 \times \cos 25) (= 17.8(60...))$ or $(x^2 =) 10^2 + 9.06^2 - (2 \times 10 \times 9.06 \times \cos 25) (= 17.8(60...))$		3	M1 for a correct trigonometrical statement for x or for a correct Pythagoras statement for x^2
	eg $(x =) 10 \cos 65$ or $(x =) \frac{10 \sin 65}{\tan 65}$ or $(x =) 10 \sin(90 - 65)$ or $(x =) \frac{10}{\sin 90} \times \sin(90 - 65)$ or $(x =) \sqrt{10^2 - (10 \sin 65)^2} (= \sqrt{17.8(60...)})$ or $(x =) \sqrt{10^2 - (9.06(307...))^2} (= \sqrt{17.8(60...)})$ or $(x =) \sqrt{10^2 + (10 \sin 65)^2 - (2 \times 10 \times 10 \sin 65 \times \cos 25)} (= \sqrt{17.8(60...)})$ or $(x =) \sqrt{10^2 + 9.06^2 - (2 \times 10 \times 9.06 \times \cos 25)} (= \sqrt{17.8(60...)})$			M1 for correct calculation to find x (implies the first M1)
	<i>Correct answer scores full marks (unless from obvious incorrect working)</i>	4.23		A1 accept an answer in the range 4.22 – 4.23
				Total 3 marks

Question		Working	Answer	Mark	Notes
20	(a)(i)		1, 2, 4, 5, 10, 15	1	B1 correct values with no omissions, additional values or repeated values, can be in any order
	(ii)		1, 2, 4	1	B1 correct values with no omissions, additional values or repeated values, can be in any order
	(b)	<p>Acceptable eg 2 is in both sets 5 is a prime number and a factor of 20 2 and 5 are in A and C The prime numbers 2 and 5 are factors of 20 Set A contains 2 and/or 5 which is prime $A \cap C = \{2, 5\}$</p> <p>Not acceptable eg there are numbers in the list that are factors of 20 and prime A and C both have 1 in them 1, 2 and 5 are in set A and set C 1 and 2 are prime and in A There are prime numbers in A 5 is prime 5 is prime and a multiple of 5</p>	2 and/or 5 are both prime and factors of 20	1	B1 for a correct statement identifying 2 and/or 5 belonging to both set A (factors of 20) and set C (prime numbers)
					Total 3 marks

Question		Working	Answer	Mark	Notes
21		eg $\frac{60}{24}$ (= 2.5) oe or 150 minutes or 2 hours 30 minutes or 12×1.25 (=15) oe or $12 \times \frac{75}{60}$ (=15) oe		4	M1 for a method to work out the time taken to cycle 60 km in hours or minutes or for a method to work out the distance Henri runs Allow use of 1.15 or 1.4 for this mark
		eg $\frac{60}{24}$ (= 2.5) oe or 150 minutes or 2 hours 30 minutes AND 12×1.25 (=15) oe or $12 \times \frac{75}{60}$ (=15) oe OR eg $\frac{60}{24}$ (= 2.5) oe or 150 minutes or 2 hours 30 minutes AND 2:1 oe or 1:2 oe			M1 for a method to work out the time taken to cycle 60 km in hours or minutes and the distance Henri runs Allow use of 1.15 or 1.4 for this mark OR for a method to work out the time taken to cycle 60 km in hours and minutes and the ratio of times as 2:1
		$\frac{60 + "15"}{"2.5" + 1.25}$ oe or $\frac{75}{3.75}$ oe or $\frac{60 + "15"}{"150" + 75}$ (= 0.333...) oe or $\frac{75}{225}$ oe or $\frac{2 \times 24 + 12}{3}$ oe			M1 for a method to find the average speed for the whole race. This may be in km/h or km/min Allow use of 1.15 or 1.4 for this mark
		<i>Working required</i>	20		A1 dep on M2 and correct use of time conversion
					Total 4 marks

Question		Working	Answer	Mark	Notes
22	(a)		$8e^2 - 12e$	1	B1
	(b)	$f^2 - 6f + 3f - 18$		2	M1 for any 3 terms correct or for 4 out of 4 correct terms ignoring signs or for $f^2 - 3f \dots$ or for $\dots - 3f - 18$
		<i>Correct answer scores full marks (unless from obvious incorrect working)</i>	$f^2 - 3f - 18$		A1
	(c)	eg $t + 2n = ax$ or $-ax = -2n - t$ or $\frac{t}{a} = x - \frac{2n}{a}$		2	M1 for a correct first step
		<i>Correct answer scores full marks (unless from obvious incorrect working)</i>	$x = \frac{t + 2n}{a}$		A1 oe eg $x = \frac{t}{a} + \frac{2n}{a}$, must see $x =$ either in working or on answer line
	(d)		Correct diagram	2	B2 for a fully correct diagram, accept (for an open circle and] for a closed circle (B1 for drawing a line from -1 to 3 or (indep) for an open circle or (at -1 or (indep) for a closed circle or] at 3)
					Total 7 marks

Question	Working	Answer	Mark	Notes
23*		$64x^{15}y^{18}$	2	<p>B2 for $64x^{15}y^{18}$</p> <p>(B1 a single product with 2 of 64, x^{15}, y^{18} correct</p> <p>eg $64x^{15}y^n$ where $n \neq 18$ or $64x^m y^{18}$ where $m \neq 15$ or $px^{15}y^{18}$ where $p \neq 64$.</p> <p>One term can be missing with 2 correct for B1</p> <p>eg $64x^{15}$ or $64y^{18}$ or $(4)x^{15}y^{18}$ or $ax^{15}by^{18}$ where a and b are integers as long as not added to any other terms)</p>
				Total 2 marks

Question	Working	Answer	Mark	Notes
24*	$1 - (0.12 + 0.16) (= 0.72)$ oe or $0.12 + x + 2x + 0.16 = 1$ oe or $3x + 0.28 = 1$ oe or $0.12 \times 500 (= 60)$ oe or $0.16 \times 500 (= 80)$ oe or $(0.12 + 0.16) \times 500 (= 140)$ oe		4	M1
	$"0.72" \div 3 (= 0.24)$ oe or $"0.72" \div 3 \times 2 (= 0.48)$ oe or $(500 - "140") \div 3 (= 120)$ oe or $(500 - "140") \div 3 \times 2 (= 240)$ oe			M1
	$("0.24" + 0.16) \times 500$ oe or $[1 - (0.12 + "0.48")] \times 500$ oe or $("0.24" \times 500) + "80"$ oe or $500 - ["60" + "0.48" \times 500]$ oe or $"120" + "80"$ oe or $500 - ["60" + "240"]$ oe			M1 or for $\frac{200}{500}$ or $\frac{300}{500}$ or 300
	<i>Correct answer scores full marks (unless from obvious incorrect working)</i>	200		A1 cao
				Total 4 marks

Question	Working	Answer	Mark	Notes	
25	$70 \div 1000 (= 0.07 \text{ or } \frac{7}{100}) \text{ oe}$ or $70 \times 60 \times 60 (= 252\,000) \text{ oe}$ or $\frac{60 \times 60}{1000} \text{ or } \frac{3600}{1000} \text{ or } \frac{18}{5} \text{ or } 3.6$ or $\frac{1000}{60 \times 60} \text{ or } \frac{1000}{3600} \text{ or } \frac{5}{18} \text{ or } 0.27(777\dots)$ or $70 \times \frac{60}{1000} (= 4.2) \text{ oe}$		3	M1 for one of $\div 1000$ (eg sight of 0.07) or $(\times 60 \times 60)$ or $\times 3600$ oe ie correct conversion of distance units or of time units	M2 for 70×3.6 oe or $70 \div \frac{5}{18}$ oe
		$70 \times \frac{60 \times 60}{1000} \text{ oe}$ eg $(4200 \div 1000) \times 60$		M1 for a fully correct method	
		<i>Working required</i>		252	A1 cao dep on M1
				Total 3 marks	

Question		Working	Answer	Mark	Notes
26	(a)		6.51×10^{-2}	1	B1
	(b)	$32 \times 10^{56+74}$ or 32×10^{130} oe or 3.2×10^n where $n \neq 131$ or $p \times 10^{131}$ where $1 \leq p < 10$		2	M1
		<i>Correct answer scores full marks (unless from obvious incorrect working)</i>	3.2×10^{131}		A1
					Total 3 marks

Question	Working	Answer	Mark	Notes	
27	<div>$\begin{array}{r} -4x + 3y = 9 \\ \text{eg } 4x - 4y = -26 \\ \hline \text{Subtracting} \\ (3y - -4y = 9 - -26 \text{ or } 7y = 35) \\ \text{or} \\ 4\left(\frac{2y-13}{2}\right) + 3y = 9 \\ \text{or} \\ 2\left(\frac{9-3y}{4}\right) - 2y = -13 \end{array}$</div>	<div>$\begin{array}{r} +8x + 6y = 18 \\ \text{eg } 6x - 6y = -39 \\ \hline \text{Adding} \\ (8x + 6x = 18 + -39 \text{ or } 14x = -21) \\ \text{or} \\ 4x + 3\left(\frac{2x+13}{2}\right) = 9 \\ \text{or} \\ 2x - 2\left(\frac{9-4x}{3}\right) = -13 \end{array}$</div>		3	<div>M1 for a correct method to eliminate x or y: coefficients of x or y the same and the correct operation to eliminate is selected; if operator not written, the correct operation can be implied by 2 out of 3 terms correct (condone any one error in multiplication) or writing x or y in terms of the other variable and correctly substituting (condone missing brackets) NB: the mark is for the method and not for the result of the method. However, if the correct result of the method is seen, the mark can be awarded</div>
	<div>$\begin{array}{l} \text{eg } 4x + 3 \times "5" = 9 \\ \text{or} \\ 2x - 2 \times "5" = -13 \\ \text{or} \\ x = \frac{2 \times "5" - 13}{2} \\ \text{or} \\ x = \frac{9 - 3 \times "5"}{4} \end{array}$</div>	<div>$\begin{array}{l} \text{eg } 4 \times "-1.5" + 3y = 9 \\ \text{or} \\ 2 \times "-1.5" - 2y = -13 \\ \text{or} \\ y = \frac{2 \times "-1.5" + 13}{2} \\ \text{or} \\ y = \frac{9 - 4 \times "-1.5"}{3} \end{array}$</div>			<div>M1 dep on M1 for a correct substitution to find the value of the second variable using their value from a correct method to find the first variable or for repeating above method to find second variable</div>
	<div>Working required</div>	<div>$\begin{array}{l} x = -1.5 \\ y = 5 \end{array}$</div>			<div>A1 dep on M1oe eg $-\frac{3}{2}$</div>
					<div>Total 3 marks</div>

Question	Working	Answer	Mark	Notes
28	$\frac{1}{2}\pi r^2 = 227$ oe or $\pi r^2 = 227 \times 2$ oe or $r^2 = 144.5...$ or $r = \sqrt{144.5...} (= 12(.02...))$		5	M1 for a correct equation or a correct calculation to find the radius of the semicircle
	$\frac{2\pi \times "12"}{2}$ oe or $\pi \times "12" (= 37.6(99...))$ or $\pi \times "12.02..." (= 37.7(661...))$ or $\pi \times [\text{their radius}]$			M1 for a method to find the arc length of the semicircle ft their value for the radius as long as clearly identified (may be on the diagram or in the working)
	$\sqrt{15^2 - "12"'^2} (= 9)$ or $\sqrt{15^2 - "12.02..."'^2} (= 8.9(7...))$ $\sqrt{15^2 - [\text{their radius}]^2}$			M1 for a complete method to find the height of the right angled triangle ft their value for the radius as long as clearly identified (may be on the diagram or in the working)
	$"12"\pi + 2 \times 15 + 2 \times "9" (= 85.6(99...))$ or $"12.02..." \pi + 2 \times 15 + 2 \times "8.97..." (= 85.7(09...))$ or $"12"\pi + 48$ or $"12.02..." \pi + 48$ or $"37.6(99...)" + 15 + 15 + "8.97..." + "8.97..." (= 85.7(09...))$ or $[\text{arc length}] + 2 \times 15 + 2 \times [AB \text{ or } DE]$			M1 dep on M2 for a method to find the perimeter including at least the arc length and one length of 15 and one of <i>AB</i> or <i>DE</i> ft their values for the arc length and <i>AB</i> or <i>DE</i> as long as clearly identified (may be on the diagram or in working) allow the error of addition of the radius (<i>OB</i> or <i>OD</i>) or the diameter <i>BD</i>
	<i>Working required</i>	85.7		A1 dep on M2 accept an answer in the range 85.6 – 85.8
				Total 5 marks