

GCSE Maths (Calculator) Practice Foundation Paper 3

AQA Specification

Types of marks:

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

Abbreviations:

- cao cannot accept other
 ft follow through
 oe or equivalent

No working:

If no working is shown, then correct answers score full marks and incorrect answers score no marks.

Other:

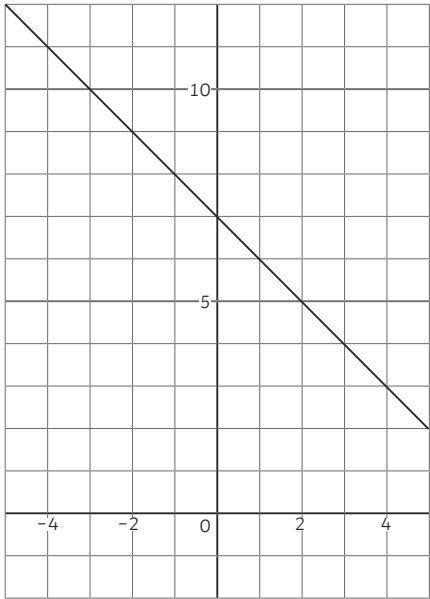
If the correct answer has **clearly** been obtained from incorrect working, award zero marks.

1.		1 mark total
	A	1 mark
2.		1 mark total
	C	1 mark
3.		1 mark total
	B	1 mark
4.		5 marks total
a.	A1 $6b^8$ cao.	1 mark
b.	M1 $x^2 + 5x - 3x - 15$ or three terms correct A1 $x^2 + 2x - 15$ cao.	2 marks
c.	A2 $4a(2a + 1)$ [award M1 for $4(2a^2 + a)$ or $a(8a + 4)$]	2 marks
5.		5 marks total
a.	A1 47° A1 "Alternate angles are equal"	2 marks
b.	M1 $180 - (47 + 35)$ A1 98° A1 "Angles in a triangle add to 180° "	3 marks



6.		5 marks total
a.	M1 $120 \div (8 \times 3)$ oe. A1 5cm cao.	2 marks
b.	M1 At least two of 8×3 , 8×5 , 3×5 seen or at least two of 24, 40, 15 seen A1 158 cao. A1 cm^2	3 marks
7.		3 marks total
	M1 12 500 or 11 500 seen A1 $11\,500 \leq p$ A1 $p < 12\,500$ or $p \leq 12\,499$	3 marks
8.		3 marks total
	A1 $\frac{21}{140}$ oe. Note: $\frac{21}{140} = \frac{3}{20}$	1 mark
	M1 $\frac{3}{20} \times 400$ ft. A1 60 cao.	2 marks
9.		2 marks total
	M1 A1 Perpendicular line constructed through P [Award M1 for correctly constructed perpendicular bisector that does not pass through P]	2 marks
10.		2 marks total
	M1 $\frac{450}{2200} \times 100$ [= 20.45%] dA1 Ben spent a larger proportion on his bills this month than the average person Condone "fraction" oe. but not "amount"	2 marks
11.		3 marks total
	M1 $\frac{3.4}{7.8}$ [= 0.43...] M1 $\sin^{-1}\left(\frac{3.4}{7.8}\right)$ ft. A1 25.8° with correct rounding	3 marks



12.		3 marks total
a.	<p>M1 $75 \times 80 [= 6000]$</p> <p>M1 $\frac{1}{2} \times \pi \times 40^2 [= 2513.27\dots]$</p> <p>A1 8513cm^2 cao.</p>	3 marks
13.		3 marks total
	<p>M1 At least two correct coordinates from: $(-4, 11)$, $(-3, 10)$, $(-2, 9)$, $(-1, 8)$, $(0, 7)$, $(1, 6)$, $(2, 5)$, $(3, 4)$, $(4, 3)$</p> <p>A2 Fully correct line.</p> 	3 marks
14.		2 marks total
	<p>M1 $24 \times 60 \times 60 [= 86\ 400]$</p> <p>"86 400" $\div 75$</p> <p>A1 1152 cao.</p>	2 marks
15.		3 marks total
	<p>M1 x, $4x$ and $8x$ seen or implied</p> <p>M1 $13x = 117$</p> <p>A1 £9 cao.</p>	3 marks
16.		3 marks total
	<p>M1 Circle radius 3.5cm with centre at the tree</p> <p>M1 Angle bisector drawn between wall of house and fence</p> <p>A1 Fully correct constructions and correct shaded area</p>	3 marks



17.		4 marks total
	<p>M1 Any two of 4000g, 3500g or 3000g seen</p> <p>M2 Correct number of cupcakes for each of the following:</p> <p>flour: 266 cupcakes</p> <p>butter: 400 cupcakes</p> <p>sugar: 320 cupcakes</p> <p>eggs: 144 cupcakes</p> <p>[M1 At least 3 correct]</p> <p>dA1 Sarah can make 144 cupcakes</p>	4 marks
18.		1 mark total
	A1 8m/s	1 mark
19.		3 marks total
	<p>A3 Correct enlargement with vertices at (4, 1), (4, 7) and (10, 7)</p> <p>[A2 Two correct vertices OR 3 correct vertices not joined]</p> <p>[A1 Correct enlargement in wrong location OR fully correct enlargement using a different scale factor]</p>	3 marks
20.		3 marks total
	<p>M1 $\frac{8}{13} \times 0.4 [= 0.246\dots]$ oe.</p> <p>M1 $\frac{5}{13} \times \frac{3}{8} [= 0.144\dots]$ oe.</p> <p>A1 0.39 oe.</p>	3 marks



21.		4 marks total
	<p>Method one: algebraic</p> <p>M1 Defining cost of one bottle, for example, as x</p> <p>M1 At least two seen from:</p> <p>Shop A: 3 bottles cost $2x$ Shop B: 2 bottles cost $1.5x$ Shop C: 1 bottle costs $0.65x$</p> <p>M1 Fully correct method for calculating cost of 20 bottles.</p> <p>Shop A: 18 bottles costing $12x$ plus two bottles from shop C costing $1.3x$ gives a total of $13.3x$ Shop B: 20 bottles cost $15x$ Shop C: 20 bottles cost $13x$</p> <p>dA1 She should buy all her bottles from Shop C.</p> <p>Method two: numerical</p> <p>M1 Defining cost of one bottle, for example, as £1</p> <p>M2 Fully correct method for calculating cost of 20 bottles</p> <p>[M1 condone one error]</p> <p>Shop A: 18 bottles costing £12 plus two bottles from shop C costing £1.30 gives £13.30. Shop B: 20 bottles cost £15 Shop C: 20 bottles cost £13</p> <p>dA1 She should buy all her bottles from Shop C</p>	4 marks
22.		5 marks total
a.	<p>A2 Fully correct tree diagram: 0.3, 0.2 and 0.8</p> <p>[A1 condone 1 error.]</p>	2 marks
b.	<p>M1 Attempt to calculate one outcome by multiplying probabilities</p> <p>M1 0.7×0.2 [= 0.14] and 0.3×0.8 [= 0.24] and 0.3×0.2 [= 0.06]</p> <p>A1 0.44 oe.</p>	3 marks
23.		2 marks total
	<p>A2 $\binom{9}{23}$</p> <p>[M1 $\binom{12}{21}$ seen (if A2 not awarded)]</p>	2 marks



24.		2 marks total
a.	A1 36 cao.	1 mark
b.	M1 $\frac{1}{2} \times 18 \times 19 [= 171]$	1 mark
25.		2 marks total
	A2 $y = 3x - 2$ [M1 gradient = 3 seen or y-intercept = -2 seen if A2 not awarded]	2 marks
26.		3 marks total
	<p>Method one: M1 0.4 or 0.2 or 0.75 seen M1 $\pi \times 0.2^2 \times 0.75$ ft. A1 0.094m^3 cao.</p> <p>Method two: M1 $\pi \times 20^2 \times 75 [= 94\,247.77961\dots]$ M1 "94 247.77961..." \div 1000 000 ft. A1 0.094m^3 cao.</p>	3 marks
27.		6 marks total
	<p>M1 Either $4x - 1 + 4x - 1 + x + x [= 10x - 2]$ or $2x + 3 + 2x + 3 + 3x + 1 [= 7x + 7]$ seen M1 $10x - 2 = 7x + 7$ and attempt to solve A1 $x = 3$</p> <p>M1 use of Pythagoras' theorem to calculate the height of the triangle to be $\sqrt{56} [= 7.48\dots]$ ft. M1 $\frac{1}{2} \times$ their "10" \times their "7.48..." ft. A1 37.4cm^2 (answer between 37.4 and 37.42) cao.</p>	6 marks

