

1MA1 Higher themed papers: Solving equations: Quadratics

Write your name here						
Surname	Other names					
Pearson Edexcel Level 1/Level 2 GCSE (9–1)	Centre Number <table border="1"><tr><td></td><td></td><td></td><td></td><td></td></tr></table>					
	Candidate Number <table border="1"><tr><td></td><td></td><td></td><td></td><td></td></tr></table>					
Mathematics Solving equations: Quadratics						
	Paper Reference 1MA1					
You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser, calculator. Tracing paper may be used.						
Total Marks <table border="1"><tr><td></td></tr></table>						

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided – *there may be more space than you need.*
- You must **show all your working**.
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- If your calculator does not have a π button, take the value of π to be 3.142 unless the question instructs otherwise.



Information

- The total mark for this paper is **20**. There are **4** questions.
- Questions have been arranged in an ascending order of mean difficulty, as found by all students in the June 2017–November 2019 examinations.
- The marks for **each** question are shown in brackets – *use this as a guide as to how much time to spend on each question.*

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

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1 $f(x) = 4\sin x^\circ$

(a) Find $f(23)$

Give your answer correct to 3 significant figures.

.....
(1)

$g(x) = 2x - 3$

(b) Find $fg(34)$

Give your answer correct to 3 significant figures.

.....
(2)

$h(x) = (x + 4)^2$

Ivan needs to solve the following equation $h(x) = 25$

He writes

$$(x + 4)^2 = 25$$

$$x + 4 = 5$$

$$x = 1$$

This is not fully correct.

(c) Explain why.

.....
.....
(1)

(Total for Question 1 is 4 marks)

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2 Solve $(x - 2)^2 = 3$

Give your solutions correct to 3 significant figures.

.....
(Total for Question 2 is 2 marks)

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3 (a) Solve $3x^2 = 108$

.....
(2)

(b) Factorise $x^2 - 2x - 35$

.....
(2)

$$u = \frac{3t}{4} + 2$$

(c) Make t the subject of the formula.

.....
(3)

(Total for Question 3 is 7 marks)

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4 For all values of x

$$f(x) = 2x - 3 \text{ and } g(x) = x^2 + 2$$

(a) Find $g(-4)$

.....
(1)

(b) Show that $gf(x) = 4x^2 - 12x + 11$

(2)

(c) Solve $fg(x) = gf(x)$

.....
(4)

(Total for Question 4 is 7 marks)

TOTAL MARKS FOR PAPER: 20