Write your name here

Surname		Other names

In the style of:
Pearson Edexcel
GCSE

Centre Number

Candidate Number

Mathematics

Quadratics

Higher Tier

GCSE style questions arranged by topic

Paper Reference
1MA0/2H

You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser, calculator.

Total Marks

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*.
- **Calculators may be used.**
- If your calculator does not have a π button, take the value of π to be 3.142 unless the question instructs otherwise.
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- You must **show all your working out**.

Information

- The total mark for this paper is 80
- 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.

Turn over ▶

1 Simplify fully

$$\frac{6x^2 + x - 1}{4x^2 - 1}$$

....

(Total for Question 1 is 4 marks)

2 Simplify fully $\dfrac{x^2 - 8x + 15}{2x^2 - 7x - 15}$

....

(Total for Question 2 is 3 marks)

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3 The diagram below shows a 6-sided shape.
  All the corners are right angles.
  All the measurements are given in centimetres.

Diagram **NOT**
accurately drawn

y

$2y + 1$

5

y
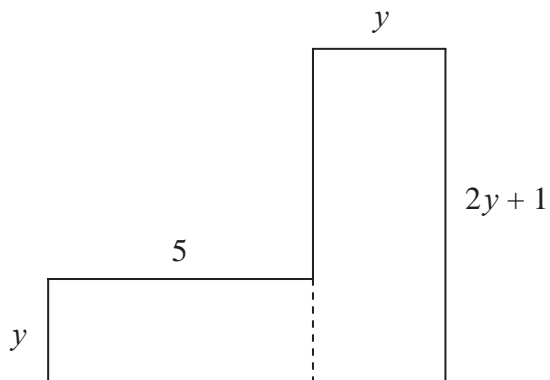
The area of the shape is $95\,\text{cm}^2$.

(a) Show that $2y^2 + 6y - 95 = 0$

(3)

(b) Solve the equation

$$2y^2 + 6y - 95 = 0$$

Give your solutions correct to 3 significant figures.

(3)

(Total for Question 3 is 6 marks)

$y = $ .... or $y = $ ....

4 (a) Rearrange this equation

$$\frac{5}{x+2} = \frac{4-3x}{x-1}$$

to give $\quad 3x^2 + 7x - 13 = 0$

(3)

(b) Solve $\;3x^2 + 7x - 13 = 0$
correct to 2 decimal places.

$x = $ .... or $x = $ ....

(3)

(Total for Question 4 is 6 marks)

5 (a) Expand and simplify $(x + 3)(x - 2)$

....
(2)

(b) Factorise $x^2 + 7x + 10$

....
(2)

(c) $x = 3y + 4(z - y)$

Find the value of x when $y = 6$ and $z = 5$

$x =$ ....
(3)

(Total for Question 5 is 7 marks)

6 (a) Factorise $x^2 - 7x + 10$

....

(2)

(b) Solve $x^2 - 7x + 10 = 0$

$x =$ ....

or $x =$ ....

(1)

(Total for Question 6 is 3 marks)

7 (a) Simplify $4a + 3c - 2a + c$

....
(1)

(b) $S = \dfrac{1}{2}at^2$

Find the value of S when $t = 3$ and $a = \dfrac{1}{4}$

$S =$ ....
(2)

(c) Factorise $x^2 - 5x$

....
(2)

(d) Expand and simplify $(x + 3)(x + 4)$

....
(2)

(e) Factorise $y^2 + 8y + 15$

....
(2)

(Total for Question 7 is 9 marks)

8 (a) Simplify $(c^2 k^5)^4$

....
(1)

(b) Expand and simplify $(3x + 5)(4x - 1)$

....
(2)

(c) Solve $x^2 - 3x - 10 = 0$

$x = $ ....
(3)

(Total for Question 8 is 6 marks)

9 The plan below shows a large rectangle of length $(2x + 6)$ m and width x m.

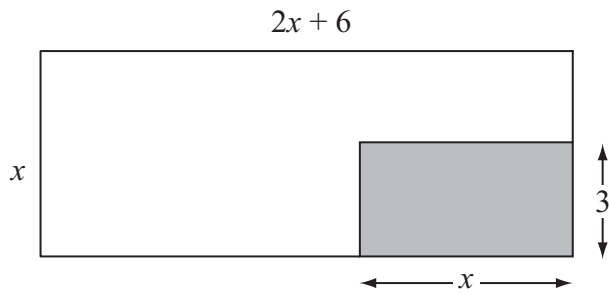A smaller rectangle of length x m and width 3 m is cut out and removed.

$2x + 6$

Diagram **NOT** accurately drawn

x

3

x

The area of the shape that is left is 100 m².

(a) Show that $2x^2 + 3x - 100 = 0$

(3)

(b) Calculate the length of the smaller rectangle.
Give your answer correct to 3 significant figures.

.... m

(4)

(Total for Question 9 is 7 marks)

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