

Write your name here

Surname

Other names

In the style of:
Pearson Edexcel

Centre Number

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Candidate Number

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Mathematics

Surds and Indices

Higher Tier

GCSE style questions arranged by topic

Paper Reference

1MA0/1H

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

Total Marks

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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 not be used.**
- 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 Work out $(2 + \sqrt{5})(2 - \sqrt{5})$

Give your answer in its simplest form.

.....

(1)

(Total for Question 1 is 1 mark)

2 (a) Write down the value of $64^{\frac{1}{2}}$

.....

(1)

(b) Write $\sqrt{45}$ in the form $k\sqrt{5}$, where k is an integer.

.....

(1)

(Total for Question 2 is 3 marks)



3 Find the value of

(i) 8^0

.....
(1)

(ii) $64^{\frac{1}{2}}$

.....
(1)

(iii) $\left(\frac{27}{8}\right)^{\frac{2}{3}}$

.....
(2)

(Total for Question 3 is 4 marks)



4 (a) Simplify $4x \times 5y$

.....
(1)

(b) Simplify $x \times x \times x \times x$

.....
(1)

(c) Expand $4(3n - 7)$

.....
(2)

(d) Expand and simplify $2(2x + 3) + 3(x + 1)$

.....
(2)

(e) Simplify $n^2 \times n$

.....
(1)

(f) Simplify $p^5 \div p^3$

.....
(1)

(Total for Question 4 is 8 marks)



5 (a) Simplify $q^5 \times q^4$

.....

(1)

(b) Simplify $r^5 \div r^2$

.....

(1)

(c) Simplify $12tv^6 \div 6tv^5$

.....

(2)

(d) Simplify $(9w^2y^6)^{\frac{1}{2}}$

.....

(2)

(e) For $y > 1$, write the following expressions in order of size.

Start with the expression with the least value.

$$y^0 \quad y^2 \quad y \quad y^{-2} \quad y^{\frac{1}{2}}$$

.....

(2)

(Total for Question 5 is 8 marks)



6 (a) Simplify $n^3 \times n^4$

.....
(1)

(b) Simplify $q^7 \div q^3$

.....
(1)

(c) Simplify $a^2b^3 \times 3ab^2$

.....
(2)

(Total for Question 6 is 4 marks)

7 (a) Expand and simplify $3(a + 4) + 5(2a + 1)$

.....
(2)

(b) Simplify $x^4 \times x^6$

.....
(1)

(c) Simplify $y^8 \div y^5$

.....
(1)

(d) Simplify $(z^4)^3$

.....
(1)

(Total for Question 7 is 5 marks)



8 (a) Simplify $v^6 \times v^2$

.....
(1)

(b) Simplify $\frac{m^8}{m^3}$

.....
(1)

(c) Simplify $(2y)^3$

.....
(2)

(d) Simplify $3a^2h \times 4a^5h^4$

.....
(2)

(Total for Question 8 is 6 marks)



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