

1MA1 Foundation themed papers: Indices

Write your name here									
Surname					Other names				
Centre Number					Candidate Number				
Pearson Edexcel					Candidate Number				
Level 1/Level 2 GCSE (9–1)					Candidate Number				
Mathematics									
Indices									
					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	

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 **51**. There are **27** 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 Find the value of 6^5

.....
(Total for Question 1 is 1 mark)



2 Work out 2^3

.....
(Total for Question 2 is 1 mark)



3 Work out the value of 2^4

.....
(Total for Question 3 is 1 mark)

4 Work out the value of 3^5

.....
(Total for Question 4 is 1 mark)

5 Find the value of 5^4

.....
(Total for Question 5 is 1 mark)

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6 Simplify $3 \times 4t$

.....

(Total for Question 6 is 1 mark)

7 (a) Simplify $3f \times 5g$

.....
(1)

(b) Simplify $t \times t$

.....
(1)

(Total for Question 7 is 2 marks)

8 Simplify $d^2 \times d^3$

.....

(Total for Question 8 is 1 mark)

9 (a) Simplify $a \times b \times 7$

.....
(1)

(b) Simplify $y \times y \times y$

.....
(1)

(c) Simplify fully $\frac{e \cdot e \cdot e \cdot f}{e \cdot e \cdot f \cdot f}$

.....
(2)

(Total for Question 9 is 4 marks)

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10 (a) Simplify $5f - f + 2f$

.....
(1)

(b) Simplify $2 \times m \times n \times 8$

.....
(1)

(c) Simplify $t^2 + t^2$

.....
(1)

(Total for Question 10 is 3 marks)

11 (a) Simplify $y^3 + y^3$

.....
(1)

(b) Factorise $m^2 + m$

.....
(1)

(Total for Question 11 is 4 marks)

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12 The same number is missing from each box.

$$\square \times \square \times \square = 343$$

(a) Find the missing number.

.....
(1)

(b) Work out 4^4 .

.....
(1)

(Total for Question 12 is 2 marks)



13 (a) Write down the value of $\sqrt{64}$

.....
(1)

(b) Work out the value of 5^3

.....
(1)

(Total for Question 13 is 2 marks)

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14 $p^3 \times p^x = p^9$

(a) Find the value of x .

$x = \dots\dots\dots$
(1)

$(7^2)^y = 7^{10}$

(b) Find the value of y .

$y = \dots\dots\dots$
(1)

$100^a \times 1000^b$ can be written in the form 10^w

(c) Show that $w = 2a + 3b$

(2)

(Total for Question 14 is 4 marks)

15 $p^2 \times p^n = p^6$

Find the value of n .

$\dots\dots\dots$
(Total for Question 15 is 1 mark)

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16 (a) Simplify $(p^2)^5$

.....
(1)

(b) Simplify $12x^7y^3 \div 6x^3y$

.....
(2)

(Total for Question 16 is 3 marks)

17 Simplify $(m^3)^2$

.....

(Total for Question 17 is 1 mark)



18 Work out $(-3)^3$

.....

(Total for Question 18 is 1 mark)



19 Work out $(-2)^3$

.....
(1)

(Total for Question 19 is 3 marks)

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20 (a) Simplify $(t^3)^2$

.....
(1)

(b) Simplify $\frac{w^9}{w^4}$

.....
(1)

(Total for Question 20 is 2 marks)

21 Simplify $3y^2 \times 4y^3$

.....
(Total for Question 21 is 1 mark)

22 Simplify $3p^2r^4 \times 5p^4r$

.....
(2)
(Total for Question 22 is 2 marks)

23 Simplify $5u^2w^4 \times 7uw^3$

.....
(2)
(Total for Question 23 is 2 marks)

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24 Work out the value of $\frac{3^7 \times 3^{-2}}{3^3}$

.....
(Total for Question 24 is 2 marks)



25 (a) Write $\frac{3^5 \times 3^4}{3^2}$ as a power of 3.

.....
(2)

(b) Write down the value of 12^0

.....
(1)

(c) Write down the value of 3^{-2}

.....
(1)

(Total for Question 25 is 4 marks)

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26 (a) Simplify $m^3 \times m^4$

.....
(1)

(b) Simplify $(5np^3)^3$

.....
(2)

(c) Simplify $\frac{32q^9r^4}{4q^3r}$

.....
(2)

(Total for Question 26 is 5 marks)



27 Write down the value of 2^{-3}

.....
(1)

(Total for Question 27 is 1 mark)

TOTAL MARKS FOR PAPER: 51