

Laws of Indices

For Pearson Edexcel GCSE Mathematics (1MA1) • Foundation tier

Name _____

Total marks: **22**

Answer **all** questions in the spaces provided. Show your working: marks are given for correct method. You must **not** use a calculator.

1 Write as a single power

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

.....
(1)

(b) $2^{10} \div 2^4$

.....
(1)

(c) $(5^3)^4$

.....
(1)

(d) $8^9 \div 8$

.....
(1)

(Total for Question 1 is 4 marks)

- 2 Simplify $\frac{7^5 \times 7^2}{7^3}$
Give your answer as a power of 7

.....
(2)

(Total for Question 2 is 2 marks)

- 3 Write $7^{-2} \times (7^3)^2$ as a power of 7

.....
(2)

(Total for Question 3 is 2 marks)

- 4 $3^2 \times 3^6 = 3^n$
Work out the value of n .

$n =$
(1)

(Total for Question 4 is 1 mark)

- 5** (a) Write down the value of 15^0

.....
(1)

- (b) Write $\frac{1}{9}$ as a power of 3

.....
(1)

(Total for Question 5 is 2 marks)

6 $4^3 \times 2^5 = 2^x$

Work out the value of x .

$x =$
(2)

(Total for Question 6 is 2 marks)

7 Carl says $5^6 \div 5^2 = 5^3$

Explain why Carl is wrong.

.....
(1)

(Total for Question 7 is 1 mark)

8 Show that $10^2 \div 10^5 = 0.001$

(2)

(Total for Question 8 is 2 marks)

9 $(4^n)^2 = 4^6 \times 4^4$

Work out the value of n .

$n = \dots\dots\dots$
(2)

(Total for Question 9 is 2 marks)

10 Show that $8^2 \times 4^3 = 2^{12}$

(2)

(Total for Question 10 is 2 marks)

11 Work out the value of $\frac{5^9}{5^4 \times 5^3}$

.....
(2)

(Total for Question 11 is 2 marks)
