

Laws of Indices in Algebra

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

Name _____

Total marks: **30**

Answer **all** questions in the spaces provided. Show your working: marks are given for correct method.

1 (a) Simplify $n^5 \times n^4$

.....
(1)

(b) Simplify $y^{12} \div y^3$

.....
(1)

(c) Simplify $(e^4)^3$

.....
(1)

(Total for Question 1 is 3 marks)

2 (a) Simplify $t \times t \times t$

.....
(1)

(b) Simplify $p^3 + p^3$

.....
(1)

(Total for Question 2 is 2 marks)

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

.....
(1)

(b) Simplify $15x^6y^4 \div 3x^2y$

.....
(2)

(Total for Question 3 is 3 marks)

4 Simplify $4a^3b^2 \times 6ab^5$

.....
(2)

(Total for Question 4 is 2 marks)

5 Simplify $(2mp^4)^3$

.....
(2)

(Total for Question 5 is 2 marks)

6 (a) $x^7 \times x^n = x^{12}$
Work out the value of n .

$n =$
(1)

(b) $(x^3)^n = x^{21}$
Work out the value of n .

$n =$
(1)

(Total for Question 6 is 2 marks)

7 (a) Simplify $y^{-3} \times y^7$

.....
(1)

(b) Simplify $(k^4)^{-2}$

.....
(1)

(Total for Question 7 is 2 marks)

8 Simplify $\frac{x^5 \times x^3}{x^4}$

.....
(2)

(Total for Question 8 is 2 marks)

9 Sam says,
 $'3^2 \times 3^4 = 9^6'$

Explain why Sam is wrong.

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

(Total for Question 9 is 1 mark)

10 Simplify $(3a^2b)^2$

.....
(2)

(Total for Question 10 is 2 marks)

11 (a) Write down the value of x^0

.....
(1)

(b) Simplify $8y^0$

.....
(1)

(Total for Question 11 is 2 marks)

- 12** A rectangle has length $4x^3$ cm and width $2x^2$ cm.

Find an expression for the area of the rectangle.
Give your answer in its simplest form.

..... cm^2
(2)

(Total for Question 12 is 2 marks)

- 13** Show that $(2x^3)^2 \times x = 4x^7$

(2)

(Total for Question 13 is 2 marks)

- 14** (a) Simplify fully $3x^4y^2 \times 5xy^6$

.....
(2)

- (b) Simplify $(p^{-2})^{-4}$

.....
(1)

(Total for Question 14 is 3 marks)
