Name: _____

GCSE (1 - 9) Indices (Index Laws)	Solutions:

These questions are compiled from *released* Pearson Edexcel GCSE maths exam papers
They contain exam questions from up until the ***Summer 2023*** exam series
More recent exam papers do exist but are withheld for mock exams
As new exam papers are released these worksheets will gradually be updated
The ***most current*** version of these worksheets will always be available at: kennethstafford.co.uk

Question	Where the question appeared
1	Edexcel, GCSE, Autumn 2017, Paper 1F, Q22
2	Edexcel, GCSE, Autumn 2017, Paper 2F, Q21
3	Edexcel, GCSE, Summer 2018, Paper 2F, Q20
4	Edexcel, GCSE, Autumn 2018, Paper 1F, Q20
5	Edexcel, GCSE, Autumn 2019, Paper 1F, Q26
6	Edexcel, GCSE, Autumn 2020, Paper 1F, Q30
7	Edexcel, GCSE, Autumn 2020, Paper 3F, Q23
8	Edexcel, GCSE, Summer 2023, Paper 1F, Q29
9	Edexcel, GCSE, Summer 2023, Paper 3F, Q20
10	Edexcel, GCSE, November 2022, Paper 1F, Q21

1

(a) Work out $\frac{2}{5} + \frac{1}{4}$

.....

(2)

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

.....

(1)

(Total for Question 22 is 3 marks)

[Edexcel, GCSE, Autumn 2017, Paper 1F, Q22]

2

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

(a) Find the value of x.

$x =$ .....

(1)

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

(b) Find the value of y.

$y =$ .....

(1)

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

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

(2)

(Total for Question 21 is 4 marks)

[Edexcel, GCSE, Autumn 2017, Paper 2F, Q21]

3

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

.....

(1)

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

.....

(2)

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

.....

(2)

(Total for Question 20 is 5 marks)

[Edexcel, GCSE, Summer 2018, Paper 2F, Q20]

4

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

.....

(Total for Question 20 is 2 marks)

[Edexcel, GCSE, Autumn 2018, Paper 1F, Q20]

5

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

.....

(1)

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

.....

(2)

(Total for Question 26 is 3 marks)

[Edexcel, GCSE, Autumn 2019, Paper 1F, Q26]

6

(a) Make q the subject of $p = 6q + 7$

.....

(2)

(b) Simplify $(m^{-2})^{-3}$

.....

(1)

(Total for Question 30 is 3 marks)

[Edexcel, GCSE, Autumn 2020, Paper 1F, Q30]

7

(a) Simplify $n^3 \times n^5$

.....

(1)

(b) Simplify $\frac{c^3d^4}{c^2d}$

.....

(2)

(c) Solve $\frac{5x}{2} > 7$

.....

(2)

(Total for Question 23 is 5 marks)

[Edexcel, GCSE, Autumn 2020, Paper 3F, Q23]

8

Work out the value of $\dfrac{4^{-6} \times 4^{9}}{4}$

.....

(Total for Question 29 is 2 marks)

[Edexcel, GCSE, Summer 2023, Paper 1F, Q29]

9

(a) Simplify $(m^2)^3$

.....

(1)

(b) Simplify $x^5 \times x^8$

.....

(1)

(c) Expand $4p(p^2 + 3p)$

.....

(2)

(Total for Question 20 is 4 marks)

[Edexcel, GCSE, Summer 2023, Paper 3F, Q20]

10

Simplify $(2^{-5} \times 2^8)^2$

Give your answer as a power of 2

.....

(Total for Question 21 is 2 marks)

[Edexcel, GCSE, November 2022, Paper 1F, Q21]