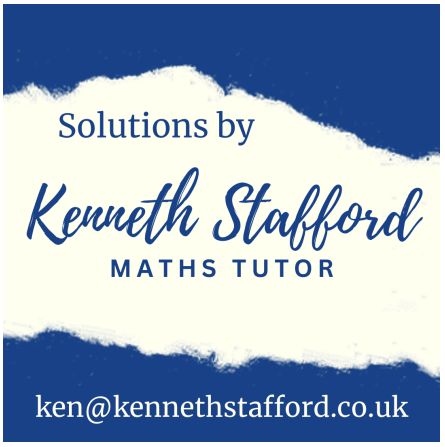
Name: SOLUTIONS

GCSE (1 - 9)

Powers and Roots





These questions represent all of the times that this topic has appeared in unlocked Pearson Edexcel GCSE maths papers as of July 2023. More questions can be found at examq.co.uk

Question	Where the question appeared
1	Edexcel, GCSE, Summer 2017, Paper 1F, Q1
2	Edexcel, GCSE, Summer 2017, Paper 2F, Q8
3	Edexcel, GCSE, Autumn 2017, Paper 3F, Q9
4	Edexcel, GCSE, Summer 2018, Paper 2F, Q3
5	Edexcel, GCSE, Autumn 2018, Paper 1F, Q5
6	Edexcel, GCSE, Autumn 2018, Paper 2F, Q2
7	Edexcel, GCSE, Autumn 2018, Paper 2F, Q4
8	Edexcel, GCSE, Autumn 2018, Paper 3F, Q3
9	Edexcel, GCSE, Summer 2019, Paper 1F, Q15
10	Edexcel, GCSE, Summer 2019, Paper 3F, Q4
11	Edexcel, GCSE, Autumn 2019, Paper 2F, Q5
12	Edexcel, GCSE, Autumn 2020, Paper 2F, Q5
13	Edexcel, GCSE, Autumn 2020, Paper 3F, Q4

Powers and Roots Questions from Past Papers

1

Work out the value of 2^4

$2 \times 2 \times 2 \times 2 = 16$

.....

(Total for Question 1 is 1 mark)

[Edexcel, GCSE, Summer 2017, Paper 1F, Q1]

2

Here is a list of numbers.

21 22 23 24 25 26 27 28 29

(a) From the numbers in the list, write down a square number.

$5^2 = 25$

25

.....

(1)

(b) From the numbers in the list, write down a number that is a multiple of **both** 4 and 6

Multiples of 4: ... 20 24 28 32

Multiples of 6: ... 18 24 30 36

24

.....

(1)

(c) Write down all the prime numbers in the list.

23 29

.....

(1)

(Total for Question 8 is 3 marks)

[Edexcel, GCSE, Summer 2017, Paper 2F, Q8]

3

Square Numbers

1 4 9 16 25

Nidah writes down two different prime numbers.

She adds together her two numbers.

Her answer is a square number less than 30

Find two prime numbers that Nidah could have written down.

Prime Numbers

2 3 5 7 11 13 17 19 23 29

11 + 5 = 16

23 + 2 = 25

2 or 7

13 or 3

11 or 5

23 , 2

(Total for Question 9 is 2 marks)

[Edexcel, GCSE, Autumn 2017, Paper 3F, Q9]

4

Work out the value of 3^5

3 x 3 x 3 x 3 x 3 = 243

(Total for Question 3 is 1 mark)

[Edexcel, GCSE, Summer 2018, Paper 2F, Q3]

5

(a) Work out $3 \times 5 + 7$

22

(1)

(b) Work out 2^3

$2 \times 2 \times 2 = 8$

(1)

(c) Write brackets ( ) in this statement to make it correct.

$7 \times (2 + 3) = 35$

(1)

(Total for Question 5 is 3 marks)

[Edexcel, GCSE, Autumn 2018, Paper 1F, Q5]

6

Write down a square number that is also an odd number.

e.g. 1, 9, 25, 49, 81

(Total for Question 2 is 1 mark)

[Edexcel, GCSE, Autumn 2018, Paper 2F, Q2]

7

Work out the cube root of 64

$\sqrt[3]{64} = 4$

(Total for Question 4 is 1 mark)

[Edexcel, GCSE, Autumn 2018, Paper 2F, Q4]

8

Find $\sqrt{1.44}$

1.2

(Total for Question 3 is 1 mark)

[Edexcel, GCSE, Autumn 2018, Paper 3F, Q3]

9

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

8

(1)

(b) Work out the value of 5^3

5 x 5 x 5 = 125

(1)

(Total for Question 15 is 2 marks)

[Edexcel, GCSE, Summer 2019, Paper 1F, Q15]

10

Here is a list of numbers.

4 6 9 10 15 27 30 40

From the list, write down all the numbers that are powers of 3

$3^1 = 3$ $3^2 = 9$ $3^3 = 27$ $3^4 = 81$

9 27

(Total for Question 4 is 1 mark)

[Edexcel, GCSE, Summer 2019, Paper 3F, Q4]

11

Find the value of 6^5

$6 \times 6 \times 6 \times 6 \times 6 = 7776$

(Total for Question 5 is 1 mark)

[Edexcel, GCSE, Autumn 2019, Paper 2F, Q5]

12

Here is a list of numbers.

3 4 9 18 27 30 36

From the numbers in the list, write down a cube number.

$1^3 = 1$

$2^3 = 8$

$3^3 = 27$

$4^3 = 64$

27

(Total for Question 5 is 1 mark)

[Edexcel, GCSE, Autumn 2020, Paper 2F, Q5]

13

Work out 2.5^2

$2.5 \times 2.5 = 6.25$

(Total for Question 4 is 1 mark)

[Edexcel, GCSE, Autumn 2020, Paper 3F, Q4]