

Indices and Brackets

ANSWERS

Calculator | 30 minutes | Total marks: 30

Name

Class

1 Work out

(a) $15 - 3 \times 4$

Answer 3 (1) [1 mark]

(b) 7^2

Answer 49 (1) [1 mark]

(c) $\sqrt{81}$

Answer 9 (1) [1 mark]

2 Work out

(a) $5 + 2 \times 3^2$

Answer 23 (1) [1 mark]

(b) $(11 - 5)^2 \div 4$

$6^2 = 36 (1)$

Answer 9 (1) [2 marks]

3

Put one pair of brackets into each calculation so that it is true.

(a) $2 + 8 \times 5 - 3 = 18$

Answer $2 + 8 \times (5 - 3) = 18$ (1)

[1 mark]

(b) $36 \div 6 - 3 + 1 = 13$

Answer $36 \div (6 - 3) + 1 = 13$ (1)

[1 mark]

4

Noor buys 3 bags of compost at £4 each. She pays with a £20 note.

Write this as one calculation and work out her change.

$20 - 3 \times 4$ (1)

Answer £ 8 (1)

[2 marks]

5

(a) Write $6 \times 6 \times 6 \times 6 \times 6$ in index form.

Answer 6^5 (1)

[1 mark]

(b) Work out the value of 3^4

Answer 81 (1)

[1 mark]

(c) Write 64 as a power of 2

Answer 2^6 (1)

[1 mark]

- 6 (a) Which is bigger, 3^5 or 5^3 ? Show how you know.

$$3^5 = 243, 5^3 = 125 \text{ (1)}$$

Answer 3^5 (1)

[2 marks]

- (b) Write these in order of size. Start with the smallest.

$$2^5 \quad 6^2 \quad 3^3$$

$$27, 32, 36$$

Answer $3^3, 2^5, 6^2$ (1)

[1 mark]

- 7 Write each of these as a single power.

(a) $4^5 \times 4^3$

Answer 4^8 (1)

[1 mark]

(b) $9^7 \div 9^2$

Answer 9^5 (1)

[1 mark]

(c) $(7^4 \times 7^6) \div 7^3$

$$7^{10} \div 7^3 \text{ (1)}$$

Answer 7^7 (1)

[2 marks]

8 Find the missing power.

(a) $2^5 \times 2^{\square} = 2^{11}$

Answer 6 (1) [1 mark]

(b) $6^{\square} \div 6^3 = 6^4$

Answer 7 (1) [1 mark]

9 Use your calculator to work out

(a) 4.2^3

Answer 74.088 (1) [1 mark]

(b) $3.6^2 + \sqrt{12.25}$

$12.96 + 3.5$ (1)

Answer 16.46 (1) [2 marks]

(c) $(14.2 + 6.8) \div (5.3 - 2.3)$

$21 \div 3$ (1)

Answer 7 (1) [2 marks]

10

A square patio has an area of 20.25 m^2

Work out the perimeter of the patio.

$$\text{side} = \sqrt{20.25} = 4.5 \text{ m (1)}$$

Answer 18 (1) m [2 marks]

11

Jay wants to work out $27.6 \div (4.1 + 1.9)$

He types $27.6 \div 4.1 + 1.9 =$ into his calculator and gets 8.63 to 2 decimal places.

What answer should Jay get?

Answer 4.6 (1) [1 mark]

Question	Topic	RAG
1	I can work out a power, a square root and a calculation in the right order	
2	I can use BIDMAS with brackets and powers	
3	I can put in brackets to make a calculation true	
4	I can write a problem as one calculation	
5	I can write and work out numbers in index form	
6	I can compare and order powers	
7	I can use the index laws to multiply and divide powers	
8	I can find a missing power using the index laws	
9	I can use a calculator for powers, roots and brackets	
10	I can use a square root to solve a problem	
11	I can spot when brackets are needed on a calculator	