

Powers and Roots

For AQA GCSE Mathematics (8300) • Foundation tier

Name _____

Total marks: **24**

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

1 Work out

(a) 6^2

[1 mark]

Answer _____

(b) 2^5

[1 mark]

Answer _____

(c) $\sqrt{144}$

[1 mark]

Answer _____

(d) $\sqrt[3]{125}$

[1 mark]

Answer _____

2 Circle the value of 10^4

[1 mark]

40

1000

10 000

14

3 Use a calculator to work out the value of $50 - \sqrt{729}$

[1 mark]

Answer _____

4 Write 1 000 000 as a power of 10

[1 mark]

Answer _____

5 What is 243 as a power of 3?

[1 mark]

Answer _____

6 Work out $3^2 + 4^3$

[2 marks]

Answer _____

7 Work out $(-4)^3$

[1 mark]

Answer _____

8 Work out $\sqrt{3^2 + 4^2} \times 2^3$

[2 marks]

Answer _____

9 m is a square number.
 $\sqrt{m} = 7$
Circle the value of $2m$

[1 mark]

14

49

98

196

10 Between which two consecutive whole numbers does $\sqrt{50}$ lie?

[1 mark]

Answer _____ and _____

11 Use a calculator to work out $\sqrt{12.4^2 + 5.9^2}$
Give your answer to 1 decimal place.

[2 marks]

Answer _____

12 Alex says,
' $3^4 = 12$ '

Is Alex correct? Tick a box.
Give a reason for your answer.

[1 mark]

☐ Yes

☐ No

- 13** Here are four numbers.

$$2^6 \quad 4^3 \quad 5^3 \quad 8^2$$

Three of them have the same value.
Which number is the odd one out?
You must show your working.

[2 marks]

Answer _____

- 14** A square number and a cube number add up to 44
Both numbers are greater than 1
Work out the square number and the cube number.

[2 marks]

Answer _____ and _____

- 15** n is a whole number.
 $\sqrt{n}$ is 4, to the nearest whole number.
Write down all the possible values of n .

[2 marks]

Answer _____