



- 1 Write down the value of 6^2

(1 mark)

$$6^2 \text{ means } 6 \times 6$$

$$6 \times 6 = 36$$

$$\boxed{36}$$

- 2 Use your calculator to work out $\sqrt{1296}$

(1 mark)

$$\sqrt{1296} = 36, \text{ since } 36 \times 36 = 1296$$

$$\boxed{36}$$

- 3 Work out the cube of 3.

(1 mark)

$$3^3 = 3 \times 3 \times 3$$

$$\boxed{27}$$

- 4 Write down the value of $\sqrt{81}$

(1 mark)

The $\sqrt{\quad}$ symbol means the non-negative square root: the non-negative number that multiplies by itself to give 81

$$9 \times 9 = 81, \text{ so } \sqrt{81} = 9$$

$$\boxed{9}$$

- 5 Use your calculator to work out 2.5^4

(1 mark)

$$2.5^2 = 6.25$$

$$6.25^2 = 39.0625, \text{ so } 2.5^4 = 39.0625$$

$$\boxed{39.0625}$$

- 6 Work out the value of 2^5

(1 mark)

$$2^5 = 2 \times 2 \times 2 \times 2 \times 2$$

$$2, 4, 8, 16, 32, \text{ so } 2^5 = 32$$

$$\boxed{32}$$

7 Work out the value of $\sqrt[3]{64}$

(1 mark)

The cube root of 64 is the number that gives 64 when cubed
 $4 \times 4 \times 4 = 64$, so the cube root of 64 is 4

4

8 Work out the value of 0.3^2

(1 mark)

$$0.3^2 = 0.3 \times 0.3$$

$3 \times 3 = 9$, and there are two decimal places, so $0.3 \times 0.3 =$
0.09

0.09

9 Find the value of $\sqrt{0.64}$

(1 mark)

$$0.8 \times 0.8 = 0.64$$

$$\text{So } \sqrt{0.64} = 0.8$$

0.8

10 Here are six numbers.

9 15 25 27 30 50

a. Write down the cube number.

b. Write down two square numbers.

(3 marks)

a)

$$3 \times 3 \times 3 = 27$$

27

b)

$$3 \times 3 = 9$$

$$5 \times 5 = 25$$

9 and 25

11 Work out $\sqrt{36} + 4^2$

(2 marks)

$$\sqrt{36} = 6$$

$$4^2 = 16$$

$$6 + 16 = 22$$

22

12 Use your calculator to work out the value of 4.6^3

(1 mark)

$$4.6^3 = 4.6 \times 4.6 \times 4.6$$

$$4.6 \times 4.6 = 21.16$$

$$21.16 \times 4.6 = 97.336$$

97.336

13 Here are five numbers.

6 9 16 27 40

Write down the two numbers that are powers of 3

(1 mark)

The powers of 3 are 3, 9, 27, 81, ..

From the list, $9 = 3^2$ and $27 = 3^3$

9 and 27

14 Write down the square number that is between 30 and 45

(1 mark)

The square numbers are 1, 4, 9, 16, 25, 36, 49, ..

The only one between 30 and 45 is 36

36

15 Work out $5^3 - \sqrt{121}$

(2 marks)

$$5^3 = 125$$

$$\sqrt{121} = 11$$

$$125 - 11 = 114$$

114

- 16 Use your calculator to work out $\sqrt[3]{1.728}$

(2 marks)

$$\sqrt[3]{1.728} = 1.2$$

Check: $1.2 \times 1.2 \times 1.2 = 1.728$

1.2

- 17 a. Work out $(-5)^3$
b. Use your calculator to work out $\sqrt{2.56}$

(2 marks)

$$a) (-5)^3 = -5 \times -5 \times -5 = 25 \times -5 = -125$$

$$b) 1.6 \times 1.6 = 2.56, \text{ so } \sqrt{2.56} = 1.6$$

- 18 Liam says,
"When you square a number, the answer is always bigger than the number you started with."
Give an example to show that Liam is wrong.

(2 marks)

Try a number between 0 and 1, for example 0.5

$0.5^2 = 0.25$, and 0.25 is smaller than 0.5, so Liam is wrong

$1^2 = 1$ or $0^2 = 0$ also work as counter-examples

- 19 Aisha says,
"32 can be written as the sum of two square numbers."
Is Aisha correct?
You must show your working.

(3 marks)

List the square numbers up to 32: 1, 4, 9, 16, 25

Check pairs that total 32

$$16 + 16 = 32$$

$$16 = 4^2, \text{ so } 32 = 4^2 + 4^2 \text{ and Aisha is correct}$$

- 20 Write $2 \times 2 \times 2 \times 5 \times 5$ using powers.

(2 marks)

$$2 \times 2 \times 2 = 2^3$$

$$5 \times 5 = 5^2$$

$$2^3 \times 5^2$$

21

 $\sqrt{200}$ lies between two whole numbers.

Write down the two whole numbers.

(2 marks)

$$14^2 = 196$$

$$15^2 = 225$$

 200 is between 196 and 225

14 and 15