

Square and cube numbers



Square and cube numbers

1. Work out the value of each.

- a) 1^2 b) 5^2
c) 8^2 d) 7^2
e) 12^2 f) $(-2)^2$

2. Complete the list of the first 10 square numbers.

—, 4, —, 16, —, 36, —, 64, —, —

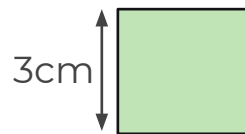
3. Work out without a calculator.

- a) 15^2 b) 24^2

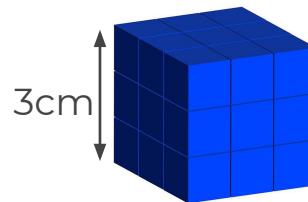
4. Work out.

- a) 1^3 b) 2^3
c) 5^3 d) 10^3

5. a) What is the area of the square?



b) What is the volume of the cube?



Square and cube numbers

6. Work out -2^2 and $(-2)^2$

What do you notice?

7. What mistakes have been made?

a) $4^3 = 12$

b) $0.7^2 = 4.9$

8. Is the statement always, sometimes or never true?

Cubing a negative number gives a negative answer.

9. Here are some number cards.

$$(-2)^2$$

$$3^2$$

$$2^3$$

$$(-1)^3$$

a) Put the cards in ascending order.

b) Find the range of the numbers.

10. Evaluate without a calculator.

a) $6^2 + 6^3$

b) $1^2 \times 2^2 \times 3^2 \times 5^2$

c) $27 - 3^3$

d) $(-3)^3 - 2^2$



Answers



Square and cube numbers

1. Work out the value of each.

a) $1^2 = 1$

b) $5^2 = 25$

c) $8^2 = 64$

d) $7^2 = 49$

e) $12^2 = 144$

f) $(-2)^2 = 4$

2. Complete the list of the first 10 square numbers.

1, 4, 9, 16, 25, 36, 49, 64, 81, 100

3. Work out without a calculator.

a) $15^2 = 225$

b) $24^2 = 576$

4. Work out.

a) $1^3 = 1$

b) $2^3 = 8$

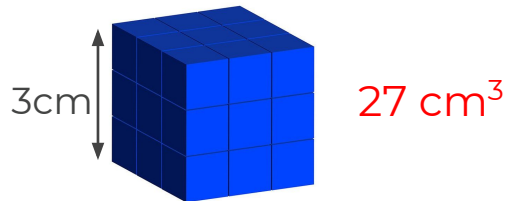
c) $5^3 = 125$

d) $10^3 = 1,000$

5. a) What is the area of the square?



b) What is the volume of the cube?



Square and cube numbers

6. Work out -2^2 and $(-2)^2$

What do you notice?

They give different answers

$$-2^2 = -4 \text{ and } (-2)^2 = 4$$

7. What mistakes have been made?

a) $4^3 = 12$ Multiplied by 3 instead of cubing.

b) $0.7^2 = 4.9$ It should be 0.49

8. Is the statement always, sometimes or never true? Always

Cubing a negative number gives a negative answer.

9. Here are some number cards.

$$(-2)^2$$

$$3^2$$

$$2^3$$

$$(-1)^3$$

a) Put the cards in ascending order.

$$(-1)^3$$

$$(-2)^2$$

$$2^3$$

$$3^2$$

b) Find the range of the numbers.

$$9 - -1 = 10$$

10. Evaluate without a calculator.

a) $6^2 + 6^3 = 252$

b) $1^2 \times 2^2 \times 3^2 \times 5^2 = 900$

c) $27 - 3^3 = 0$

d) $(-3)^3 - 2^2 = -31$

