

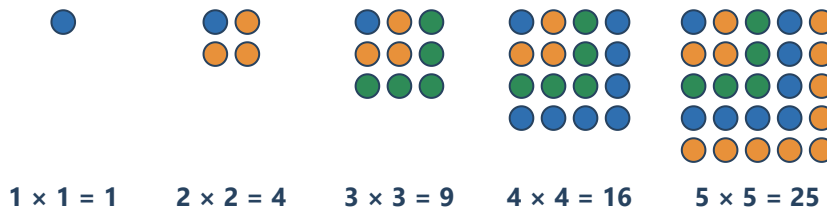
Year 5: Square numbers and cube numbers: answers

Year 5 - Prime Numbers, Factors, Squares and Cubes - Lesson 3.6

Answers. Final answers to the worksheet questions. Full step-by-step solutions for every question are free at websink.site/ks2-sats/maths/year-5/ch03-factors-primes-squares-cubes/square-numbers-and-cube-numbers/

Exercise 3G Square numbers Non-calculator

1 The picture shows the first five square numbers.



(a) How many dots are in the 6th square?

Answer: 36

(b) How many more dots does the 6th square have than the 5th square?

Answer: 11

(c) Write the 6th square number using the notation for squared.

Answer: $6^2 = 36$

2 Write each one as a multiplication. Then work it out.

(a) 3^2

Answer: 9

(b) 5^2

Answer: 25

(c) 8^2

Answer: 64

(d) 11^2

Answer: 121

(e) 12^2

Answer: 144

3 Find the missing number. What number multiplied by itself makes...

(a) $?^{2} = 49$

Answer: 7

(b) $?^{2} = 100$

Answer: 10

(c) $?^{2} = 144$

Answer: 12

(d) $?^{2} = 81$

Answer: 9

4 Work out each square. You can use partitioning or a trick.

(a) 13^{2}

Answer: 169

(b) 15^{2}

Answer: 225

(c) 20^{2}

Answer: 400

(d) 25^{2}

Answer: 625

5 Work out each square. Think about $3 \times 3 = 9$ and $10 \times 10 = 100$.

(a) 30^{2}

Answer: 900

(b) 40^{2}

Answer: 1,600

(c) 50^{2}

Answer: 2,500

(d) 80^{2}

Answer: 6,400

6 Is each number a square number? Write Yes or No.

(a) 36

Answer: Yes

(b) 50

Answer: No

(c) 81

Answer: Yes

(d) 90

Answer: No

(e) 121

Answer: Yes

(f) 200

Answer: No

7 Write the missing numbers in this list of square numbers.

1, 4, ?, 16, ?, 36, 49, ?, 81, ?

Answer: 9, 25, 64, 100

8 Solve each problem.

(a) A square patio has 13 slabs along each side. How many slabs are there altogether?

Answer: 169

(b) A square tray holds 144 chocolates in equal rows. How many chocolates are in each row?

Answer: 12

9 Leo says, " $6^2 = 12$." Is Leo right? Explain his mistake.

Answer: No. $6^2 = 6 \times 6 = 36$

10 Always, sometimes or never?

(a) The sum of two odd numbers is an even number.

Answer: Always

(b) A square number is a multiple of 4.

Answer: Sometimes

(c) A square number ends in the digit 7.

Answer: Never

11 Prove it! Show that $3^2 + 4^2 = 5^2$.

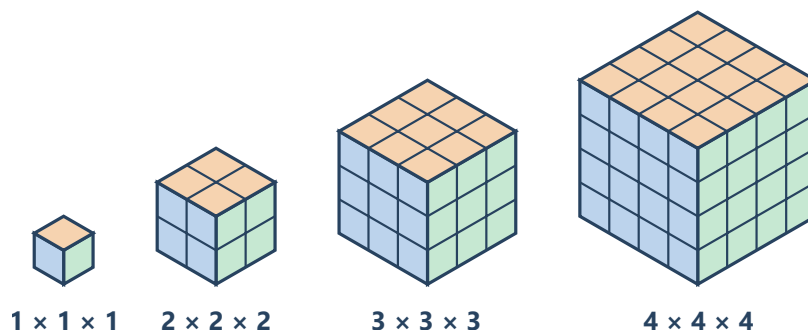
Answer: $9 + 16 = 25$

12 Challenge! I am a square number between 20 and 80. I am an even number. I am a multiple of 3. What number am I?

Answer: 36

Exercise 3H Cube numbers Non-calculator

1 The pictures show cubes made from small cubes.



(a) How many small cubes are in the $1 \times 1 \times 1$ cube?

Answer: 1

(b) How many small cubes are in the $2 \times 2 \times 2$ cube?

Answer: 8

(c) How many small cubes are in the $3 \times 3 \times 3$ cube?

Answer: 27

(d) How many small cubes are in the $4 \times 4 \times 4$ cube?

Answer: 64

2 Work out each cube number.

(a) 2^3

Answer: 8

(b) 3^3

Answer: 27

(c) 5^3

Answer: 125

(d) 10^3

Answer: 1,000

3 Write each multiplication using the notation for cubed. Then work it out.

(a) $6 \times 6 \times 6$

Answer: 216

(b) $7 \times 7 \times 7$

Answer: 343

(c) $9 \times 9 \times 9$

Answer: 729

4 Is each number a cube number? Write Yes or No.

(a) 8

Answer: Yes

(b) 20

Answer: No

(c) 125

Answer: Yes

(d) 100

Answer: No

(e) 343

Answer: Yes

(f) 1,000

Answer: Yes

5 Write the missing numbers in this list of cube numbers.

1, 8, ?, 64, ?, 216, ?, 512

Answer: 27, 125, 343

6 Work out each one. Do the squares and cubes first.

(a) $5^2 - 2^3$

Answer: 17

(b) $4^3 - 6^2$

Answer: 28

(c) $2^3 + 4^2$

Answer: 24

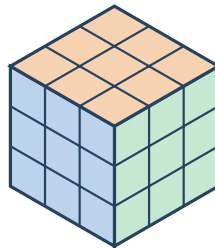
(d) $10^3 - 10^2$

Answer: 900

7 Mia says, " 4^3 is bigger than 8^2 ." Is Mia right? Show how you know.

Answer: No. $4^3 = 64$ and $8^2 = 64$. They are equal.

8 A 3 by 3 by 3 cube is made from small cubes. The outside of the big cube is painted blue.



(a) How many small cubes make the big cube?

Answer: 27

(b) How many of the small cubes have blue paint on at least one face?

Answer: 26

9 Solve each problem.

(a)

A cube-shaped box is filled with sugar cubes. There are 10 sugar cubes along each edge. How many sugar cubes are there?

Answer: 1,000

- (b) A cube-shaped box holds exactly 125 small cubes. How many small cubes are along each edge?

Answer: 5

10 Some numbers are both square numbers and cube numbers.

- (a) Find a number between 50 and 100 that is both a square and a cube.

Answer: 64

- (b) Find a number between 700 and 800 that is both a square and a cube.

Answer: 729