

Square roots and cube roots



Square roots and cube roots

1. Max says

$$(-3)^2 = 9 \quad \text{and} \quad 3^2 = 9$$

He thinks



That means if $x^2 = 9$
then there are two
possible values for x !

Is this true for every equation of the form $x^2 = a$?

2. Solve the equations.

a) $x^2 = 49$ b) $x^2 = 36$ c) $x^2 = 1$

3. A cube has a volume 27 cm^3

What is the side length of the cube?

4. True or false?

a) $\sqrt[3]{8} = 2$ b) $\sqrt[3]{100} = 10$ c) $\sqrt[3]{125} = 5$

5. Find the cube root of each number.

a) 64 b) 1,000 c) 1



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6. True or false?

Negative numbers have a cube root but not a square root.

7. Work out.

a) $\sqrt[3]{-8}$ b) $\sqrt[3]{-27}$ c) $\sqrt[3]{-1}$

8. Use a calculator to work out.

a) $\sqrt[3]{15.625}$ b) $\sqrt[3]{35.937}$ c) $\sqrt[3]{-0.001}$

9. Match the number cards with their answers.

$\sqrt{9}$ $\sqrt{64}$ $\sqrt[3]{-27}$ $\sqrt[3]{-64}$

-3 -4 8 3

10. Evaluate without a calculator.

a) $\sqrt[3]{27} + \sqrt[3]{64}$

b) $\sqrt[3]{216} - \sqrt[3]{225}$

c) $\sqrt[3]{216} \div \sqrt[3]{225}$



Answers



Square roots and cube roots

1. Max says

$$(-3)^2 = 9 \quad \text{and} \quad 3^2 = 9$$

He thinks



That means if $x^2 = 9$
then there are two
possible values for x !

Is this true for every equation of the form $x^2 = a$? **Yes, where $a > 0$**

2. Solve the equations.

a) $x^2 = 49$	b) $x^2 = 36$	c) $x^2 = 1$
$x = \pm 7$	$x = \pm 6$	$x = \pm 1$

3. A cube has a volume 27 cm^3

What is the side length of the cube?

3 cm

4. True or false?

a) $\sqrt[3]{8} = 2$	b) $\sqrt[3]{100} = 10$	c) $\sqrt[3]{125} = 5$
True	False	True

5. Find the cube root of each number.

a) 64	b) 1,000	c) 1
4	10	1



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6. True or false? **True**

Negative numbers have a cube root but not a square root.

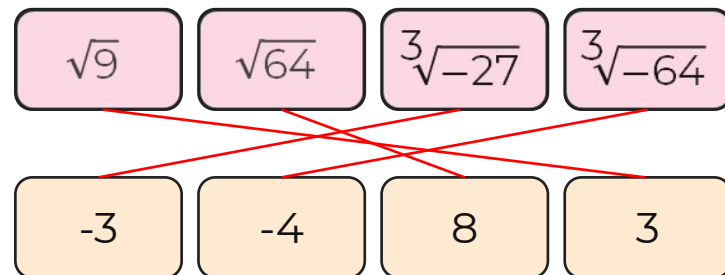
7. Work out.

a) $\sqrt[3]{-8}$ b) $\sqrt[3]{-27}$ c) $\sqrt[3]{-1}$
-2 -3 -1

8. Use a calculator to work out.

a) $\sqrt[3]{15.625}$ b) $\sqrt[3]{35.937}$ c) $\sqrt[3]{-0.001}$
2.5 3.3 -0.1

9. Match the number cards with their answers.



10. Evaluate without a calculator.

a) $\sqrt[3]{27} + \sqrt[3]{64} = 7$
b) $\sqrt[3]{216} - \sqrt[3]{225} = 1$
c) $\sqrt[3]{216} \div \sqrt[3]{225} = 1.2$

