

Key

Roots
Square Roots

1. Describe in your own words how to find the square root ($\sqrt{\quad}$) of a number.

Square Root: A # that when multiplied by 2 factors of itself is equal to the given #.

121 $\begin{matrix} \rightarrow 11 & \text{because } 11 \cdot 11 = 121 \\ \rightarrow -11 & \text{because } -11 \cdot -11 = 121 \end{matrix}$

2. Find each of the following ...

a. $\sqrt{25}$

5

b. $\sqrt{49}$

7

c. $\sqrt{81}$

9

d. $\sqrt{64}$

8

e. $\sqrt{1}$

1

f. $\sqrt{9}$

3

g. $\sqrt{36}$

6

h. $\sqrt{100}$

10

i. $\sqrt{-25}$

can't
do
or
5i

j. $-\sqrt{49}$

-7

k. $\sqrt{-81}$

can't
do
or
9i

l. $-\sqrt{64}$

-8

m. $\sqrt{144}$

12

n. $\sqrt{-9}$

can't
do
or
3i

o. $\sqrt{36}$

6

p. $\sqrt{196}$

14

q. $-\sqrt{25}$

-5

j. $\sqrt{-49}$

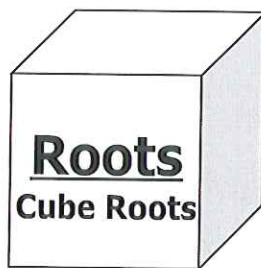
can't
do
or
7i

k. $-\sqrt{400}$

-20

l. $\sqrt{-64}$

can't
do
or
8i



1. Any ideas what "cube root" ($\sqrt[3]{\quad}$) means. Describe in your own words how to find the cube root $\sqrt[3]{\quad}$ of a number. For example, $\sqrt[3]{27}$?

Cube Root: A # that when multiplied by 3 factors of itself is equal to the given #.
 $8 \rightarrow 2$ because $2 \cdot 2 \cdot 2 = 8$
 $27 \rightarrow 3$ because $3 \cdot 3 \cdot 3 = 27$

2. Find each of the following ...

a. $\sqrt[3]{125}$

5

b. $\sqrt[3]{216}$

6

c. $\sqrt[3]{8}$

2

d. $\sqrt[3]{729}$

9

e. $\sqrt[3]{27}$

3

f. $\sqrt[3]{512}$

8

g. $\sqrt[3]{343}$

7

h. $-\sqrt[3]{1000}$

-10

i. $\sqrt[3]{-125}$

-5

j. $-\sqrt[3]{216}$

-6

k. $\sqrt[3]{-8}$

-2

l. $\sqrt[3]{-729}$

-9

m. $\sqrt[3]{-27}$

-3

n. $\sqrt[3]{-512}$

-8

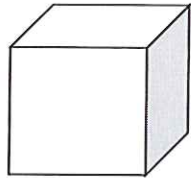
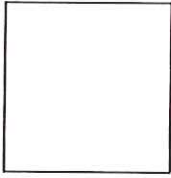
o. $-\sqrt[3]{343}$

-7

p. $\sqrt[3]{-1000}$

-10

Square Roots and Cube Roots



Examples)

3. $\sqrt{25} = 5$ because... $5 \cdot 5 = 25$

4. $\sqrt{36} = 6$ because... $6 \cdot 6 = 36$

5. $\sqrt[3]{27} = 3$ because... $3 \cdot 3 \cdot 3 = 27$

6. $\sqrt[3]{64} = 4$ because... $4 \cdot 4 \cdot 4 = 64$

Now you try...

7. $\sqrt[3]{125} = 5$ because... $5 \cdot 5 \cdot 5 = 125$ 15. $\sqrt{256} = 16$ because... $16 \cdot 16 = 256$

8. $\sqrt[3]{216} = 6$ because... $6 \cdot 6 \cdot 6 = 216$ 16. $\sqrt[3]{1000} = 10$ because... $10 \cdot 10 \cdot 10 = 1000$

9. $\sqrt{361} = 19$ because... $19 \cdot 19 = 361$ 17. $\sqrt[3]{512} = 8$ because... $8 \cdot 8 \cdot 8 = 512$

10. $-\sqrt{225} = -15$ because... $15 \cdot 15 = 225$ 18. $\sqrt{64} = 8$ because... $8 \cdot 8 = 64$

11. $\sqrt{121} = 11$ because... $11 \cdot 11 = 121$ 19. $\sqrt[3]{64} = 4$ because... $4 \cdot 4 \cdot 4 = 64$

12. $\sqrt[3]{-216} = -6$ because... $-6 \cdot -6 \cdot -6 = -216$ 20. $\sqrt[3]{0} = 0$ because... $0 \cdot 0 \cdot 0 = 0$

13. $\sqrt[3]{8} = 2$ because... $2 \cdot 2 \cdot 2 = 8$ 21. $\sqrt[3]{729} = 9$ because... $9 \cdot 9 \cdot 9 = 729$

14. $\sqrt{196} = 14$ because... $14 \cdot 14 = 196$ 22. $\sqrt{-49} = 7i$ because... —