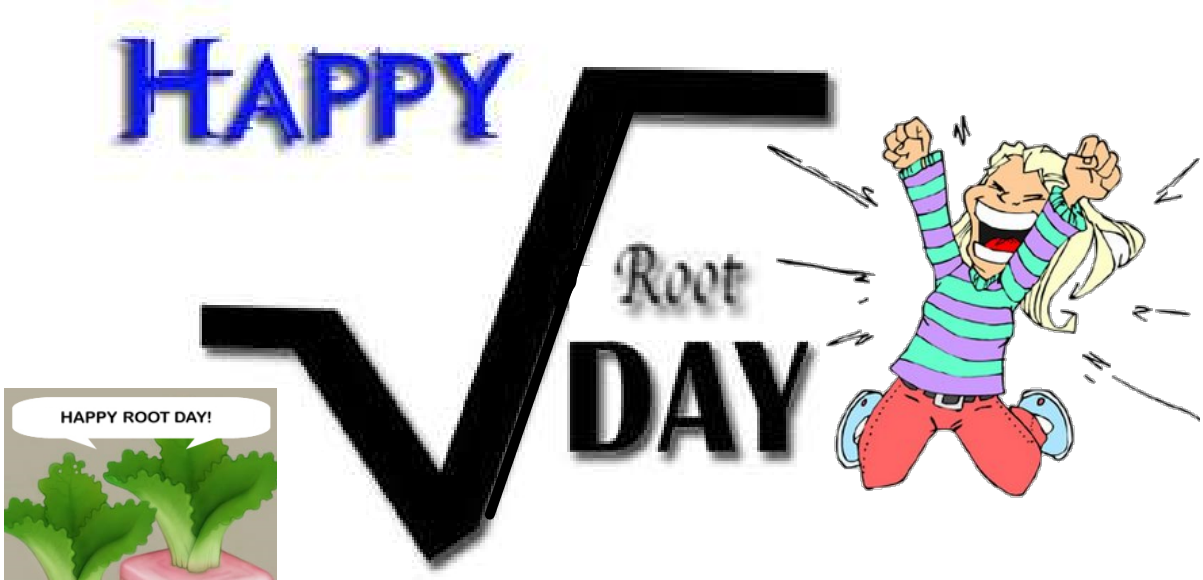
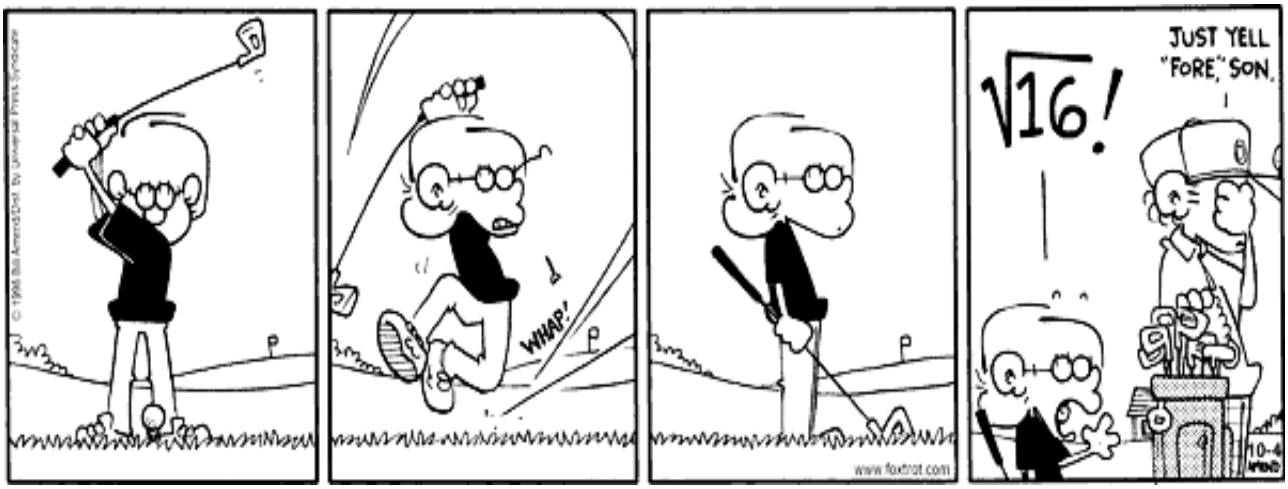
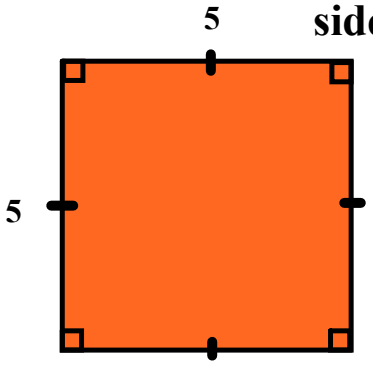

HAPPY
Root
DAY

HAPPY ROOT DAY!


WHAP!
www.foxtrot.com
√16!
JUST YELL "FORE," SON.

What is a Perfect Square?

Perfect Square - **Any whole number that can be represented as the area of a square with a whole number as its side length is a *perfect square***



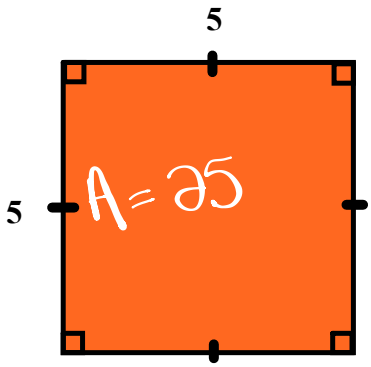
Area = b x h
= 5 x 5
= 25

25 is a perfect Square!!

Perfect Squares:

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

What is the square root of something?



Square Root- A number for which, when multiplied by itself, results in a given number.

$5^2 = 25$, therefore 5 is the square root of 25

$\sqrt{25} = 5$ ← length

↑ Area

***The side length of the square is the square root of the area.*

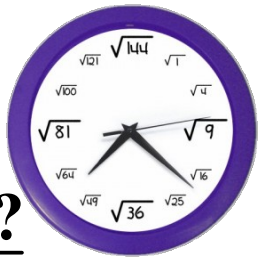
Determing the Square Root of a Whole Number

(2's or pairs)

Using Prime Factorization

1. Write the prime factorization of the number.
2. Group the prime factors into pairs. (2's)
3. Take one number from each group, then multiply

Lets Try!!



What is the square root of 1296 ?

Write 1296 as a product of its prime factors.

$\sqrt{1296} = 2 \cdot 2 \cdot 2 \cdot 2 \cdot 3 \cdot 3 \cdot 3 \cdot 3$

$= (2 \cdot 2)(2 \cdot 2)(3 \cdot 3)(3 \cdot 3)$

$= 2 \cdot 2 \cdot 3 \cdot 3$

$= 36$

1. Write the prime factorization of the number.
2. Group the prime factors into pairs.
3. Take one number from each group, then mul

$$\sqrt{1296} = 36$$

$\sqrt{45} = \sqrt{3 \cdot 3 \cdot 5} = 3\sqrt{5}$

What is the square root of 1764 ?

pairs

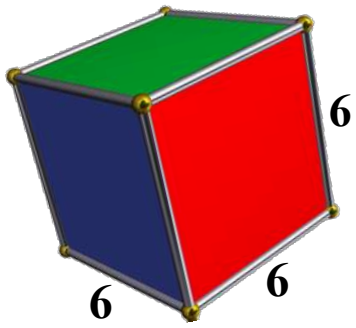
$\sqrt{1764} \Rightarrow 2 \times 2 \times 3 \times 3 \times 7 \times 7$

$= 2 \times 3 \times 7$

$= 42$

What is a Perfect Cube?

Perfect Cube - **Any whole number that can be represented as the volume of a cube with a whole number as its edge length.**



Volume = l x w x h
= 6 x 6 x 6
= 216

216 is a perfect cube!!

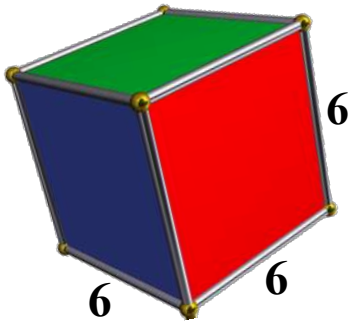
Perfect Cubes:

1, 8, 27, 64, 125, 216, 343, . . .

What is the cube root of something?

Cube Root - **A number which, when raised to the exponent 3, results in a given number.**

$6^3 = 216$, therefore 6 is the cube root of 216



$\sqrt[3]{216} = 6$

(216: volume; 6: length)

The edge length of a cube is the cube root of its volume.

Determing the Cube Root of a Whole Number

(3's or trios)

Using Prime Factorization

1. Write the prime factorization of the number.
2. Group the prime factors into sets of 3.
3. Take one number from each group, then multiply.

Lets Try!!

What is the cube root of 1728 ?

$\sqrt[3]{1728} = 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 3 \cdot 3 \cdot 3$

$= (2 \cdot 2 \cdot 2)(2 \cdot 2 \cdot 2)(3 \cdot 3 \cdot 3)$

$= 2 \times 2 \times 3$

$= 12$

1. Write the prime factorization of the number.
2. Group the prime factors into sets of 3.
3. Take one number from each group, then multiply.

$$\sqrt[3]{1728} = 12$$

What is the cube root of 2744 ?

(trios)

$\sqrt[3]{2744} \Rightarrow 2 \times 2 \times 2 \times 7 \times 7 \times 7$

$= 2 \times 7$

$= 14$

Square Root

$\sqrt{9}$

$= 3$

Cube Root

$\sqrt[3]{8}$

$= 2$

Check it Out!

Page 146

4 a, b

5 b, e

6

7a

8a

Answers on Page 470

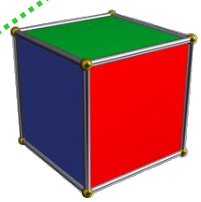
Surface Area

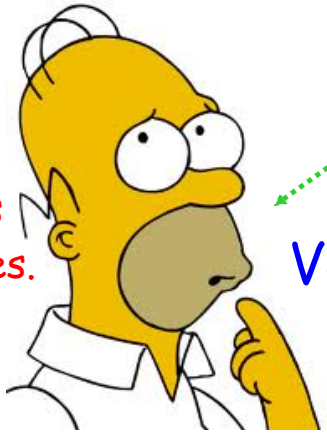
Sum of the area of each face.

Area = L x W

Cube

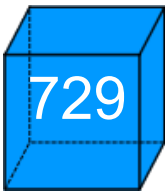
A cube has 6 equal faces.



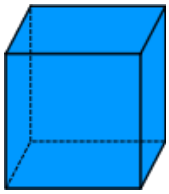


Volume = L x W x H

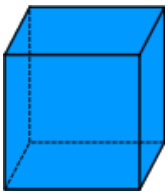
Volume to surface area



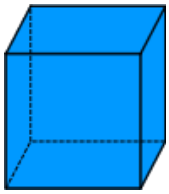
If the volume of a cube is 729 cm^3 what is the surface area?



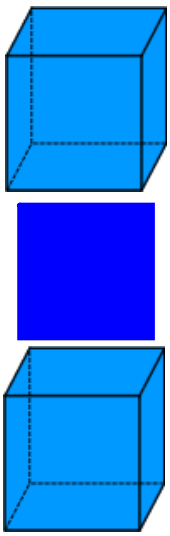
Volume to surface area



If the volume of a cube is 2744 cm^3 what is the surface area?



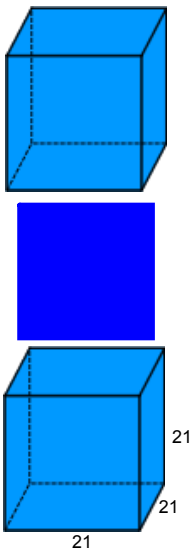
Surface area to volume



726

If the surface area of a cube is 726 cm^2 what is the volume?

Surface area to volume



If the surface area of a cube is 2646 cm^2 what is the volume?

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9

10

11

12