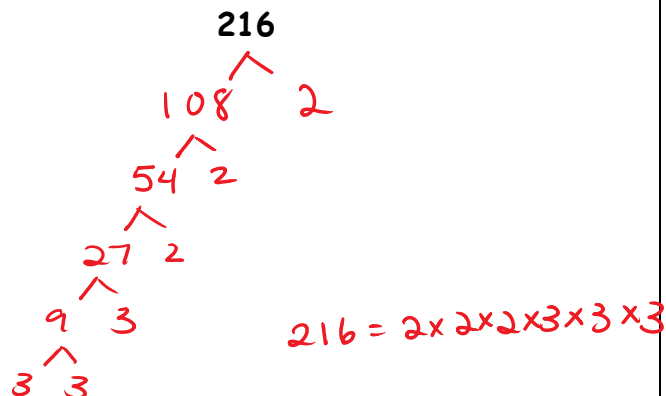
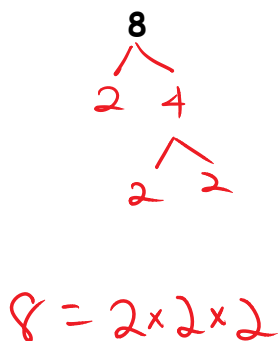


Date: _____

3.6 Notes: Cubes and Cube Roots

Determine the prime factorization of the following numbers:



Cube

To cube a number, just use it in a multiplication 3 times...

Example 1

3 cubed = $3 \times 3 \times 3$ = 27

We write down "3 cubed" as 3^3 .

(The little 3 means the number appears three times in multiplying)

Example 2

2 cubed = $2^3 = 2 \times 2 \times 2 = 8$

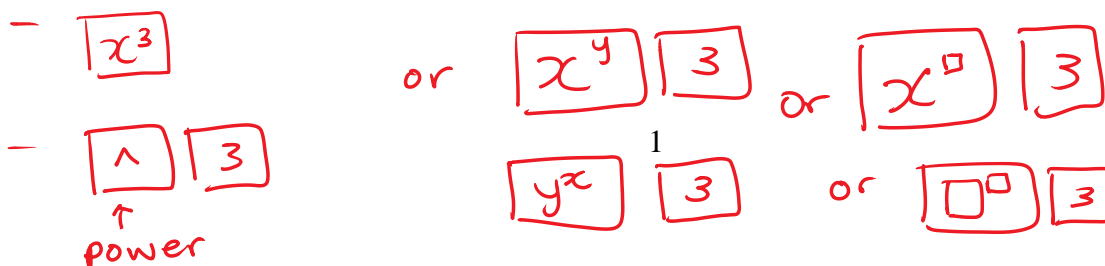
4 cubed = $4^3 = 4 \times 4 \times 4 = 64$

5 cubed = $5^3 = 5 \times 5 \times 5 = 125$

6 cubed = $6^3 = 6 \times 6 \times 6 = 216$

In order to use a calculator for cubes...

- you can multiply the number three times



Cube Root

$\sqrt{\quad}$ = Square root

A Cube root goes the other direction:

$\sqrt[3]{\quad}$ = cube root

3 cubed is 27, so the Cube root of 27 is 3.

The Cube Root Symbol

This is the special symbol that means "cube root", it is the "radical" symbol (used for square roots) with a little three to mean Cube root.

The cube root of 27 equals 3. $\sqrt[3]{27} = \sqrt[3]{3 \times 3 \times 3} = 3$

Example 3

The cube root of 64 $\sqrt[3]{64} = \sqrt[3]{4 \times 4 \times 4} = 4$

The cube root of 125 $\sqrt[3]{125} = \sqrt[3]{5 \times 5 \times 5} = 5$

The cube root of 216 $\sqrt[3]{216} = \sqrt[3]{6 \times 6 \times 6} = 6$

The cube root of 343 $\sqrt[3]{343} = \sqrt[3]{7 \times 7 \times 7} = 7$

In order to use a calculator for cube roots....

$\sqrt[3]{\quad}$ or $\boxed{\wedge} \boxed{1} \boxed{\div} \boxed{3}$

cube root = power of $\frac{1}{3}$

$\boxed{\square^{\circ}} \boxed{1} \boxed{\div} \boxed{3}$

$\boxed{x^y} \boxed{1} \boxed{\div} \boxed{3}$