Cubes and Cube Roots Worksheet

Name _____ Date _____ Period _____

What does it mean to "cube" a number?

Fill in the chart:

1^3=	2^3=	3^3=	4^3=	5^3=
6^3=	7^3=	8^3=	9^3=	10^3=

The inverse of cubing a number is….

$\sqrt[3]{8}$=	$\sqrt[3]{512}$=	$\sqrt[3]{125}$=	$\sqrt[3]{64}$=

How do you find the cube root of a *non-perfect cube?*

Example: what is the cube root of 30?

Well, 3 × 3 × 3 = 27 and 4 × 4 × 4 = 64, so we can guess the answer is between 3 and 4.

- Let's try 3.5: *3.5 × 3.5 × 3.5 = 42.875*
- Let's try 3.2: *3.2 × 3.2 × 3.2 = 32.768*
- Let's try 3.1: *3.1 × 3.1 × 3.1 = 29.791*

We are getting closer, but very slowly ... at this point, I get out my calculator and it says:

3.107232505953858866877662427 5224

... but the digits just go on and on, without any pattern. So even the calculator's answer is **only an *approximation*** **!**

Practice: What 2 perfect cubes does $\sqrt[3]{89}$ fall between?

Practice: Rounded to the nearest hundredth, what is the $\sqrt[3]{102}$?

Assignment:

Write the **square** or **cube** of each number.

A. 4^2 = 4 x 4 = 16 9^2 = _____ 3^3 = _____

B. 6^3 = _____ 7^2 = _____ 15^3 = _____

C. 10^3 = _____ 5^3 = _____ 14^2 = _____

D. 20^2 = _____ 24^3 = _____ 19^3 = _____

E. 8^3 = _____ 13^2 = _____ 48^2 = _____

F. 17^2 = _____ 25^3 = _____ 37^2 = _____

Write the **square** root.

G. 36 = 6^2 64 = ____ 81 = ____ 25 = ____ 324 = ____ 529 = ____

H. 100 = ____ 49 = ____ 4 = ____ 16 = ____ 121 = ____ 1,600 = ____

I. 400 = ____ 225 = ____ 625 = ____ 144 = ____ 900 = ____ 2,500 = ____

Write the **cube** root.

J. 125 = 5^3 1,000 = ____ 64 = ____ 27 = ____ 8 = ____ 216 = ____

K. 512 = ____ 1,728 = ____ 2,744 = ____ 343 = ____ 8,000 = ____ 6,859 = ____

Use the chart on the back to determine which two whole numbers the non-perfect cube falls between:

$\sqrt[3]{200}$ is between _____ and _____.

$\sqrt[3]{4}$ is between _____ and _____.

$\sqrt[3]{1,058}$ is between _____ and _____.

$\sqrt[3]{65}$ is between _____ and _____.

$\sqrt[3]{2,201}$ is between _____ and _____.

Using your calculator and rounding to the nearest hundredth, write the cube root:

$\sqrt[3]{200}$ = _____

$\sqrt[3]{4}$ = _____

$\sqrt[3]{1,058}$ = _____

$\sqrt[3]{65}$ = _____

$\sqrt[3]{2,201}$ = _____