Name_____ Date_____

Mrs. Roumbos 8R Period_____

I. Solving Equations Using Square Roots and Cube Roots

***On Calculator : $\sqrt{\ }$ =

$\sqrt[3]{\ }$ =

A) Review: Square roots and cube roots

Simplify the following:

1) $\sqrt{81}$ 2) $\sqrt[3]{729}$ 3) $\sqrt[3]{343}$

4) $\sqrt{121}$ 5) $\sqrt[3]{\frac{125}{512}}$ 6) $\sqrt{\frac{100}{400}}$

B) Using Roots to Solve Equations

You can use roots to solve equations where a variable is raised to a power. Since taking the root is the inverse of raising to a power, you can simplify these types of equations by taking the root of both sides.

Ex's : Solve $x^2 = 16$

$\sqrt{x^2} = \sqrt{16}$

$x = 4$

Solve : $x^3 = 8$

$\sqrt[3]{x^3} = \sqrt[3]{8}$

$x = 2$

**Remember:

$\sqrt{x}$ (square root) is the inverse of x^2 and

$\sqrt[3]{x}$ (cube root) is the inverse of x^3

Now you try!

Solve each equation for x

1) $x^2 = 144$ 2) $x^3 = 27$ 3) $x^2 = 49$

4) $x^3 = 512$ 5) $x^2 = \frac{16}{49}$ 6) $x^3 = \frac{8}{64}$

7) $x^2 + 5 = 105$

8) $x^3 + 50 = 3425$

9) $x^2 - 200 = 200$

10) $x^2 - \frac{2}{3} = -\frac{2}{9}$

11) $x^3 + \frac{1}{2} = \frac{593}{686}$

12) $x^2 + \frac{3}{4} = \frac{13}{16}$

*** Can you take the $\sqrt{-64}$?

****Can you take the $\sqrt[3]{-64}$?

II. Word Problem Review

1) At Antonio's Pizza, a pepperoni pizza costs $6.95. Extra toppings are available for $0.50 each. If Greg bought a pizza for $8.45, how many extra toppings, T, did he order?

2) Nikki bought a bag of jelly beans. She divided the jelly beans equally among herself and three friends. There was a total of 96 jelly beans in the bag, how many jelly beans (j) did each person receive?

3) Liz spent a total of $44.88 at the mall. She has $7.62 left. How much money, m, did Liz have when she arrived at the mall?

***4) Melissa has 6 times as many quarters as Michelle. Together, they have a total of 896 quarters. How many quarters, q, does Michelle have?