

HW: Worksheet

Warm up:

Evaluate.

$$1) 5^3 = 5 \cdot 5 \cdot 5 = 125$$

$$2) (-4)^3 = (-4)(-4)(-4) = -64$$

$$3) (-1)^3 = (-1)(-1)(-1) = -1$$

$$4) 3^3 = 3 \cdot 3 \cdot 3 = 27$$

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

$$x = 2$$

$$2 \cdot 2 \cdot 2 = 8$$

~~$$(-2)^3 = (-2)(-2)(-2) = -8$$~~

cube
root

$$\sqrt[3]{\quad}$$

Inverse Operations

$+$ / $-$

\times / \div

2 / $\sqrt{\quad}$

3 / $\sqrt[3]{\quad}$

$$1^3 = 1$$

$$2^3 = 8$$

$$3^3 = 27$$

$$4^3 = 64$$

$$5^3 = 125$$

$$\frac{4x^3}{4} = \frac{-4}{4}$$
$$\sqrt[3]{x^3} = \sqrt[3]{-1}$$
$$x = -1$$

$$\frac{3x^3}{3} = \frac{81}{3}$$
$$\sqrt[3]{x^3} = \sqrt[3]{27}$$
$$x = 3$$

$$\begin{array}{r} 8 - x^3 = -117 \\ -8 \qquad \qquad -8 \\ \hline -x^3 = -125 \\ \frac{-x^3}{-1} = \frac{-125}{-1} \\ \hline \sqrt[3]{x^3} = \sqrt[3]{125} \\ \textcircled{x=5} \end{array}$$

$$\left(\sqrt[3]{n}\right)^3 = \left(2\right)^3$$
$$n = 8$$

1) $x^2 = 121$

6) $4x^3 + 1 = 501$

2) $2x^2 = 128$

7) $-5 - x^2 = -14$

3) $\sqrt{d} = 5$

8) $2x^3 + 5 = 5x^3 + 2$

4) $6\sqrt{d} = 18$

9) $\sqrt[3]{x} = 4$

5) $x^3 = 27$

10) $5x^3 - 25 = 15$

$$1) \sqrt{x^2} = \sqrt{121}$$

$$x = \pm 11$$

$$2) \frac{2x^2}{2} = \frac{128}{2}$$

$$\sqrt{x^2} = \sqrt{64}$$

$$x = \pm 8$$

$$3) (\sqrt{d})^2 = (5)^2$$

$$d = 25$$

$$4) \frac{6\sqrt{d}}{6} = \frac{18}{6}$$

$$\sqrt{d} = 3$$

$$d = 9$$

$$5) \sqrt[3]{x^3} = \sqrt[3]{27}$$

$$x = 3$$

$$6) 4x^3 + 1 = 501$$

$$\begin{array}{r} x^3 + 1 = 501 \\ \underline{-1 \quad -1} \\ x^3 = 500 \\ \underline{ } \\ x^3 = 500 \end{array}$$

$$\sqrt[3]{x^3} = \sqrt[3]{500}$$

$$x = 5$$

$$7) -5 - x^2 = -14$$

$$\begin{array}{r} +5 \quad +5 \\ \hline -x^2 = -9 \\ \hline -1 \quad -1 \\ \hline \sqrt{x^2 = 9} \\ \hline x = \pm 3 \end{array}$$

$$8) 2x^3 + 5 = 5x^3 + 2$$

$$\begin{array}{r} -2x^3 \quad -2x^3 \\ \hline -5 = 3x^3 + 2 \\ \hline -2 \quad -2 \\ \hline -3 = 3x^3 \\ \hline -1 = x^3 \\ \hline -1 = x^3 \end{array}$$

$$\sqrt[3]{1} = \sqrt[3]{x^3}$$

$$1 = x$$

$$9) (\sqrt[3]{x})^3 = (4)^3$$
$$x = 64$$

$$10) 5x^3 - 25 = 15$$
$$+25 \quad +25$$

$$5x^3 = 40$$
$$\frac{5x^3}{5} = \frac{40}{5}$$

$$\sqrt[3]{x^3} = \sqrt[3]{8}$$
$$x = 2$$

Showdown

$$4x^2 = 400$$

$$6x^3 - 50 = -2$$

$$3\sqrt{x} - 6 = 3$$

$$1 - 5x^2 = -19$$

$$2x^3 - 7 = -9$$

$$7x^2 = 28$$

$$10 - x^3 = -17$$

$$\sqrt[3]{x} = -3$$

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

$$2x^2 + 5 = 55$$

$$x^2 + 9 = 25$$

$$x^3 - 3 = -11$$

