2.7: Find Square Roots and Compare Real Numbers

Goals: *Find square roots of numbers
*Approximate a square root between two integers
*Order real numbers
*Classify real numbers

Square Roots:

SYMBOL:

Evaluate the expression:

Ex: $-\sqrt{9}$ **Ex:** $\sqrt{25}$ **Ex:** $\pm\sqrt{64}$

Ex: $-\sqrt{81}$ **Ex:** $\pm\sqrt{100}$ **Ex:** $\sqrt{121}$

Ex: $-\sqrt{400}$ **Ex:** $\sqrt{160,000}$ **Ex:** $\sqrt{4900}$

Ex: $\sqrt{0.0081}$ **Ex:** $\sqrt{0.000121}$

Solve:

Ex: $x^2 = 144$ **Ex:** $x^2 = 64$ **Ex:** $x^2 = 1$

Approximate Square Roots:

Ex: $\sqrt{32}$ **Ex:** $\sqrt{103}$

Ex: $-\sqrt{48}$ **Ex:** $-\sqrt{350}$

Ex: The top of a folding table is a square whose area is 945 square inches. Approximate the side length of the tabletop to the nearest inch.

Ex: The top of a square box has an area of 320 square inches. Approximate the side length of the box top to the nearest inch.

Evaluate the expression for the given value of x:

Ex: $-3\sqrt{x} + 36$ when $x = 64$ **Ex:** $54 - 8 \cdot \sqrt{x}$ when $x = 36$

Extension:

If $\sqrt{x}$ means to find the square root (the number times itself) that equals x, what do you think $\sqrt[3]{x}$ means?

Evaluate:

Ex: $\sqrt[3]{8}$ **Ex:** $\sqrt[3]{27}$ **Ex:** $\sqrt[3]{64}$

<u>**Irrational Number:**</u>

Classify the following numbers using all names that apply:

Number	Rational?	Irrational?	Integer?	Whole?
$\sqrt{24}$				
$\sqrt{100}$				
$-\sqrt{81}$				
$-\sqrt{25}$				
$\sqrt{361}$				
$\sqrt{30}$				

Order the following numbers from least to greatest:

Ex: $\frac{4}{3}, -\sqrt{5}, \sqrt{13}, -2.5, \sqrt{9}$ **Ex:** $-\sqrt{10}, \frac{19}{5}, -3, \sqrt{12}, \sqrt{16}$

Ex: $-\frac{9}{2}, 5.2, 0, \sqrt{7}, 4.1 - \sqrt{20}$