Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Sect \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Irrational Numbers, Exponents and Roots: Unit Review

Identify whether each number is rational or irrational (1 point each)

$10\frac{3}{4} $ \_\_\_\_\_\_\_\_\_\_\_\_\_ 12.62562897532 … \_\_\_\_\_\_\_\_\_\_\_\_ 18.2 \_\_\_\_\_\_\_\_\_\_\_\_

$\sqrt{36} $\_\_\_\_\_\_\_\_\_\_\_\_\_ $\frac{6}{5} \\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_$ $\sqrt{105} \\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_$ 3.8$\overline{33}$\_\_\_\_\_\_\_\_\_\_\_\_\_

Write the following products in exponential form (1 point each):

5 • 5 • 5 = \_\_\_\_\_\_\_\_\_\_\_ (-7) • (-7) • (-7) • (-7) • (-7) • (-7) = \_\_\_\_\_\_\_\_\_\_\_

$\left(\frac{2}{3}\right)$ • $\left(\frac{2}{3}\right)$ • $\left(\frac{2}{3}\right)$ • $\left(\frac{2}{3}\right)$ = \_\_\_\_\_\_\_\_\_\_ a • a • a • a • a • a • y = \_\_\_\_\_\_\_\_\_\_\_\_\_

Evaluate the following numbers given in exponential notation, and simplify to standard notation (2 points each):

Example: 32 = 3 x 3 = 9

83 = \_\_\_\_\_\_\_\_\_\_\_\_\_ = \_\_\_\_\_\_\_\_\_\_\_\_ (-3)4 = \_\_\_\_\_\_\_\_\_\_\_\_ = \_\_\_\_\_\_\_\_\_\_\_\_

$\left(\frac{2}{3}\right)$4 = \_\_\_\_\_\_\_\_\_\_\_\_ = \_\_\_\_\_\_\_\_\_\_\_\_ (.5)2 = \_\_\_\_\_\_\_\_\_\_\_\_ = \_\_\_\_\_\_\_\_\_\_\_

<, >, or = (1 point each)

$\sqrt{144}$ \_\_\_\_\_\_ 12 $\sqrt{24} $\_\_\_\_\_\_\_\_ 4 15 \_\_\_\_\_\_ $\sqrt{232 } $ $\frac{3}{5} $\_\_\_\_\_\_ $\sqrt{\frac{10}{25}}$

Place the following numbers in order from least to greatest: (3 points)

$$\sqrt{50} 8 6.25 \sqrt{36} 7\frac{1}{2} $$

What whole numbers are the following irrational numbers between?

What whole number is the irrational closest to?

(2 points each)

$\sqrt{3} $ is between \_\_\_\_\_ and \_\_\_\_\_ It’s closer to: \_\_\_\_\_\_\_

$\sqrt{205} $is between \_\_\_\_\_ and \_\_\_\_\_\_ It’s closer to \_\_\_\_\_\_\_

$\sqrt{91} $is between \_\_\_\_\_ and \_\_\_\_\_\_ It’s closer to \_\_\_\_\_\_\_

Applying square roots and cube roots: (3 points each)

Solve the following problems. Show how you set up and show all work.

A checkerboard is a perfect square, consisting of 64 smaller equal-size squares. How many squares long is each side of the checkerboard?

Storage Crates at the public storage facility are perfect cubes, and measure 1000 cubic feet in volume. What are the dimensions of each crate?

A cubic gift box measures 125 cubic inches in volume. What is the area of one side of the box?