

Name: _____

Class: _____



I can classify numbers as rational or irrational.

$$\begin{array}{cccccc}
 2 = \frac{2}{1} & 4 = \frac{4}{1} & 9 = \frac{9}{1} & \sqrt{1} = 1 = \frac{1}{1} & \sqrt[3]{8} = 2 = \frac{2}{1} & \\
 \sqrt{16} = 4 = \frac{4}{1} & -\sqrt{16} = -4 = \frac{-4}{1} & 2^3 = 8 = \frac{8}{1} & 700^0 = 1 = \frac{1}{1} & 5.2 = 5\frac{2}{10} = 5\frac{1}{5} & \\
 6.7 = 6\frac{7}{10} & 1 \times 10^1 = 10 = \frac{10}{1} & -5 = \frac{-5}{1} & -\frac{5}{2} & 1.3 = 1\frac{3}{10} & \\
 7.14 = 7\frac{14}{100} & -(3^2) = -9 = \frac{-9}{1} & \pi \approx 3.14159... & \frac{10}{5} & \frac{5}{10} & \\
 & = 7\frac{7}{50} & & & &
 \end{array}$$

Sort the numbers above into rational or irrational.

RATIONAL

can be written as a fraction
 whole #'s (2, 4, 9, -5)
 fractions (-5/2, 10/5, 5/10)
 perfect $\sqrt{\quad}$ / $\sqrt[3]{\quad}$
 (1, $\sqrt[3]{8}$, $\sqrt{16}$, $-\sqrt{16}$)
 terminating decimals
 (6.7, 7.14, 5.2, 1.3)
 exponents (-3², 700⁰, 2³)
 scientific notation (1 × 10¹)

IRRATIONAL

π
 non-perfect $\sqrt{\quad}$
 (like $\sqrt{10}$)
 non-perfect $\sqrt[3]{\quad}$
 (like $\sqrt[3]{20}$)
 decimals that don't end or repeat

Classify each number below as Rational (R) or Irrational (I)

$-\frac{6}{2}$ R -2.65 R $.35$ R 4^0 R π I $\sqrt{81}$ R $\sqrt[3]{8}$ R $\sqrt{8}$ I 3^{-1} R

Convert each of the following rational numbers into fractions:

$.25 \frac{25}{100} = \frac{1}{4}$ $.3 \frac{3}{10}$ $.5 \frac{5}{10} = \frac{1}{2}$ $.15 \frac{15}{100} = \frac{3}{20}$ $42\% \frac{42}{100} = \frac{21}{50}$ $-2.65 = -2\frac{65}{100} = -2\frac{13}{20}$

Estimate each of the following non perfect square and cube roots to one decimal place:

$\sqrt{18}$ 4.2 $\sqrt{8}$ 2.9 $\sqrt[3]{100}$ 4.6 $-\sqrt{34}$ -5.8
 $\sqrt{16}$ $\sqrt{25}$ $\sqrt{4}$ $\sqrt{9}$ $\sqrt[3]{64}$ $\sqrt[3]{125}$ $-\sqrt{25}$ $-\sqrt{36}$

solve using what you know about square and cube roots:

The volume of a cube is 729 in³. What is the length of one edge? 9 in

The length of one side of a cube is 5cm. What is the volume? 125 cm³

A square rug has an area of 256 ft². What is the length of one side? 16 ft

What fraction is equivalent to 5.1? Is 5.1 a rational number? Explain.

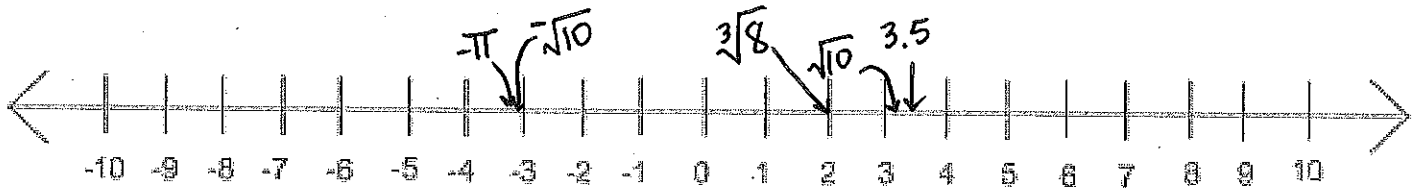
$5.1 = 5\frac{1}{10}$ or $\frac{51}{10}$ ← this is a fraction, so it's rational.

between, what two consecutive integers would $\sqrt{2}$ lie? explain.

$\sqrt{1} = 1$ $\sqrt{4} = 2$ $\sqrt{2}$ is between 1 and 2

Using the number line below, show where the following numbers would lie.

$-\pi, 3.5, \sqrt{10}, -\sqrt{10}, \sqrt[3]{8}$



The number -4.2 is rational. Which shows the number expressed as the ratio of two integers?

- A. $-\frac{4}{2}$ B. $-\frac{12}{5}$ C. $-\frac{21}{5}$ D. $-\frac{40}{2}$

Oceans cover approximately 70.8% of the Earth's surface. Which shows 70.8% as a decimal?

- a. 0.0708 b. 0.708 c. 0.78 d. 7.08

Write true or false next to each statement.

- $\sqrt{65}$ is between 6 and 7 false
 $\sqrt{8}$ is rational false
 $\sqrt{10}$ is approximately 5.2 false
 $\sqrt{3}$ is between 1 and 2 true

Write a decimal approximation for each square root below:

Square Root	Decimal Approximation
$\sqrt{57}$	7.5
$\sqrt{86}$	9.3
$\sqrt{94}$	9.7
$\sqrt{62}$	7.9

On the number line below, write a number that could represent each of the dots on the number line. Use two rational and two irrational numbers.

