Bell Ringer

Thursday 8/29

Write equations that fit the criteria given.

1. An absolute value functions that has been shifted left 3 units, shifted down 2 units, and compressed/shrunk by a factor of $\frac{1}{2}$.

$f(x) = \frac{1}{2}|x+3|-2$

2. An absolute value equation that has been stretched by a factor of 4, reflected over the x-axis, and shifted left 1 unit.

$f(x) = -4|x+1|$

Operations with Rational and Irrational Numbers!!

Categorize the numbers into two groups:

Rational or Irrational

Rational + or −

ends 2.7

$\frac{a}{b}$ $(a \neq b$-integers $b \neq 0)$

.75 $\frac{3}{4}$ $\sqrt{\text{perfect square}}$ $\sqrt{4}$

$\frac{1}{3} = .\overline{3}$

never ending REPEATING

Irrational

doesn't repeat & never ends

π $\sqrt{\text{non-perfect square}}$ $\sqrt{5}$

Rational

0 $\sqrt{\frac{4}{9}}$

$\sqrt{25}$ -16.3 $\sqrt{1}$

$\sqrt{100}$

$\frac{-1}{-1}$ $-\frac{7}{8}$ $4\frac{2}{3}$ $\frac{1}{4}$ $9.87\overline{5}$

2.5689 $0.\overline{5}$ 23.64

$-\sqrt{81}$ $0.\overline{83}$ $\frac{-2}{3}$ $\frac{20}{5}$ $\frac{17}{3}$ $\frac{6}{-1}$

Irrational

π

$\sqrt{26}$ $\sqrt{17}$

$-\sqrt{56}$

$\sqrt{50}$ $\sqrt{2}$

1.21221222...

–6.5975

1267964

39714....

RATIONAL NUMBERS INCLUDE ANY NUMBERS THAT...

Can be expressed as the quotient or fraction p/q of two integers, with the denominator q not equal to zero. Since q may be equal to 1, every integer is a **rational number**. Also any repeating or terminating decimal represents a rational number.

IRRATIONAL NUMBERS INCLUDE NUMBERS THAT...

Cannot be expressed as a ratio of integers. This means that an irrational number cannot be represented as a simple fraction. Irrational numbers are those real numbers that cannot be represented as terminating or repeating decimals.

What about when we combine things like this?
Are the solutions rational or irrational?

$\frac{\pi}{4}$ I $\quad \sqrt{5}+8$ I $\quad \sqrt{2}\cdot\sqrt{18}$ R $\sqrt{36}$ 6 $\quad \sqrt{7}+(-\sqrt{7})$ R :0

$9\frac{1}{3}+\frac{5}{7}$ R $\quad \pi-6$ I $\quad 4\sqrt{2}\cdot\sqrt{8}$ $4\sqrt{16}$ $4\cdot4$ 16 R $\quad \sqrt{3}\cdot\pi$ Irr

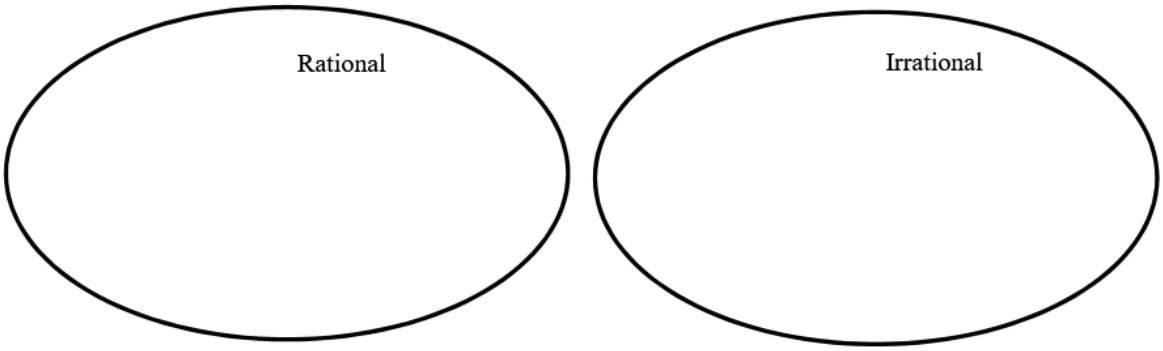
Name _____

Rational and Irrational Numbers Worksheet

1. Sort the numbers into 2 groups, rational or irrational. Write the numbers in the appropriate bubble.

0.8 $\sqrt{64}$ 0 $\sqrt{32}$ -19 $-\sqrt{100}$ 2.343443444…

$\frac{3}{7}$ $\sqrt{75}$ $6\frac{2}{7}$ $12.6\overline{7}$ $\sqrt{121}$ $\frac{12}{5}$ π

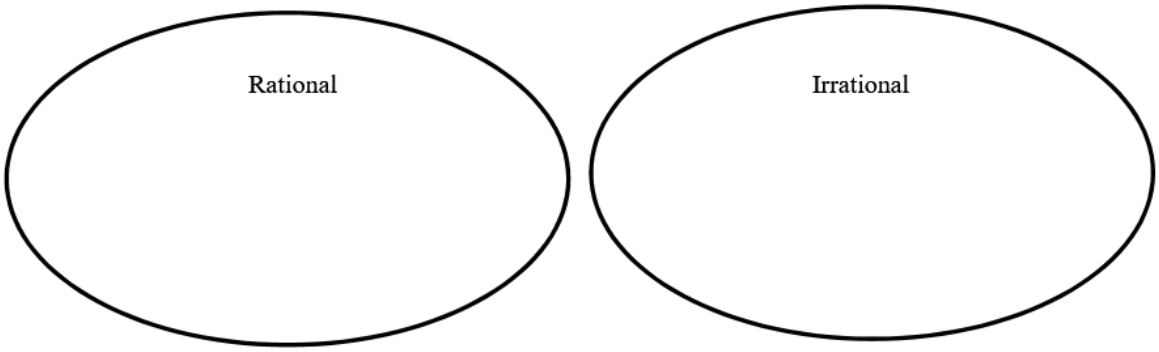


2. Sort the numbers into 2 groups, rational or irrational. Write the letter of the problem in the appropriate bubble.

(a) $\frac{5}{8}+\frac{3}{5}$ (b) $\sqrt{2}\cdot\sqrt{8}$ (c) $-\frac{1}{2}+\sqrt{2}$

(d) $\sqrt{6}+\sqrt{3}$ (e) $\sqrt{2}\cdot\frac{2}{5}$ (f) $-\frac{3}{4}\cdot\frac{2}{9}$

(g) $\frac{\pi}{2}$ (h) $5\sqrt{6}\bullet\sqrt{6}$ (i) $1-\pi$



STATEMENT	ALWAYS, SOMETIMES, OR NEVER TRUE	EXAMPLE JUSTIFICATION
The sum of a rational number and an irrational number is irrational.		
The sum of two rational numbers is rational.		
The product of a rational number and an irrational number is irrational.		
The sum of two irrational numbers is irrational.		
The product of two rational numbers is irrational.		
The product of two irrational numbers is irrational.		