Name ______________________________ Date ____________________

Rational vs. Irrational Numbers

A **rational number** can be made by dividing two integers, as long as you're not dividing by 0. You can write any rational number as a fraction.

Rational numbers written as decimals either terminate or repeat.

Example	Written as a Fraction
$\sqrt{49}$	$\frac{7}{1}$
$1\frac{5}{6}$	$\frac{11}{6}$
-8.13	$-\frac{813}{100}$
$4.\overline{3}$	$\frac{13}{3}$

An **irrational number** cannot be made by dividing two integers. It is impossible to write an irrational number as a fraction.

Irrational numbers written as decimals go on forever without repeating in a pattern.

Example	Written as a Decimal
$\sqrt{21}$	4.58257569...
π	3.14159265...
$-\sqrt{8}$	-2.82842712...
$10 + \sqrt{3}$	11.73205080...

Practice it! Draw circles around the rational numbers, and draw squares around the irrational numbers.

$\frac{3}{4}$	$\sqrt{13}$	-9.5	$-\pi$	$\sqrt{36}$	1,000	$\frac{1}{12}$
$2.\overline{72}$	4.6	$\sqrt{61}$	$\frac{2}{5}$	$-7\frac{3}{10}$	$\sqrt{9}$	$-\frac{16}{5}$
$\frac{14}{4}$	$\sqrt{25}$	$\frac{1}{50}$	$\pi + 5$	$-\frac{4}{8}$	$1 - \sqrt{32}$	-7
$\sqrt{90}$	$\frac{3}{11}$	$\sqrt{5}$	0	$10.\overline{4}$	13	$\sqrt{100}$
$3.\overline{6}$	-21.2	3π	$\sqrt{4} + \sqrt{5}$	$-\frac{3}{10}$	$\sqrt{14}$	$-\sqrt{1}$
$\sqrt{2}$	$0.1\overline{7}$	$-\frac{2}{36}$	$8.\overline{3}$	$\sqrt{64}$	$\frac{7}{25}$	$1.\overline{36}$