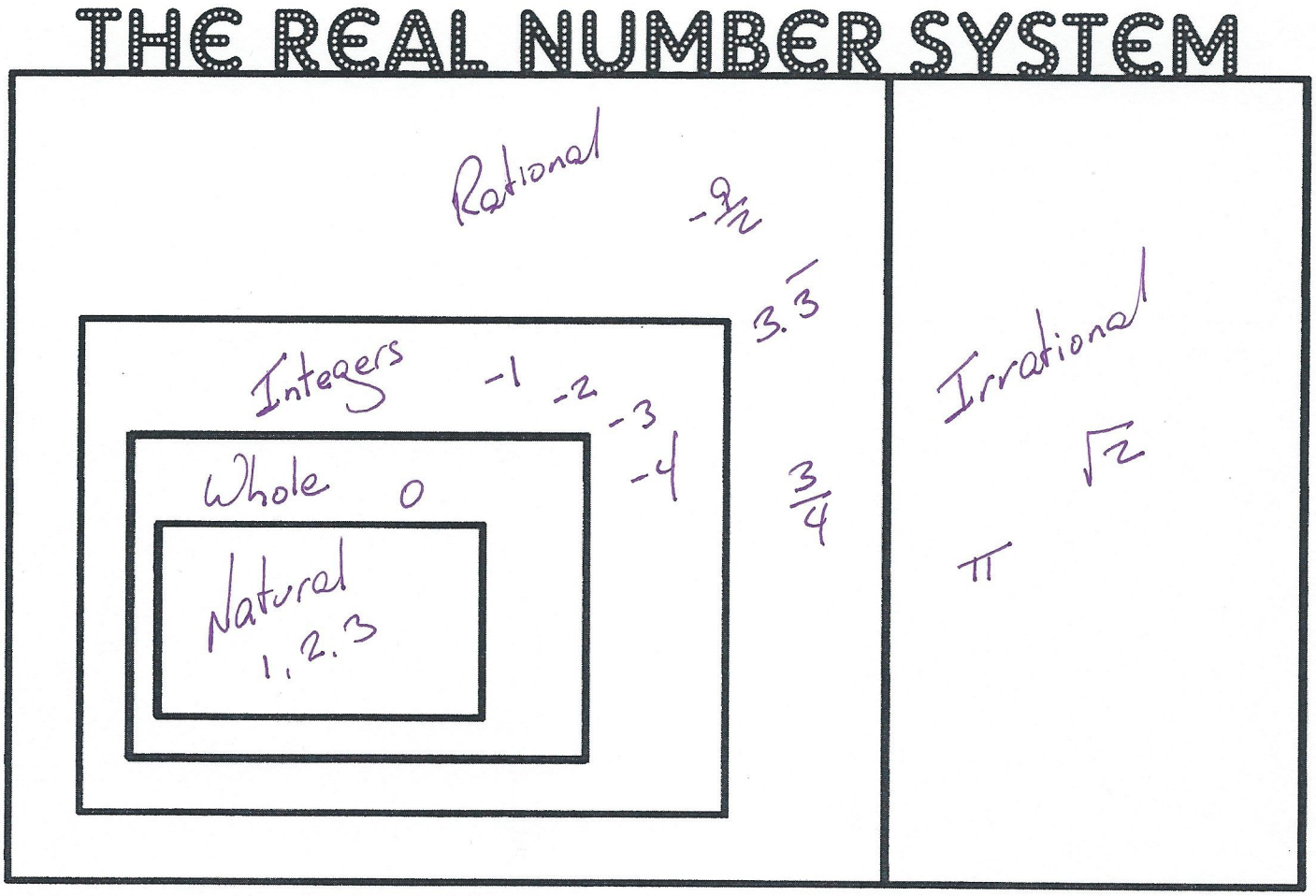
Name: _____

1. Search the internet for the Real Number System and fill in the diagram below with the names of each subset.



2. Write a definition for each subset of the system and give four examples of numbers which would represent the subset.

Natural - counting numbers

Whole - natural #s + zero

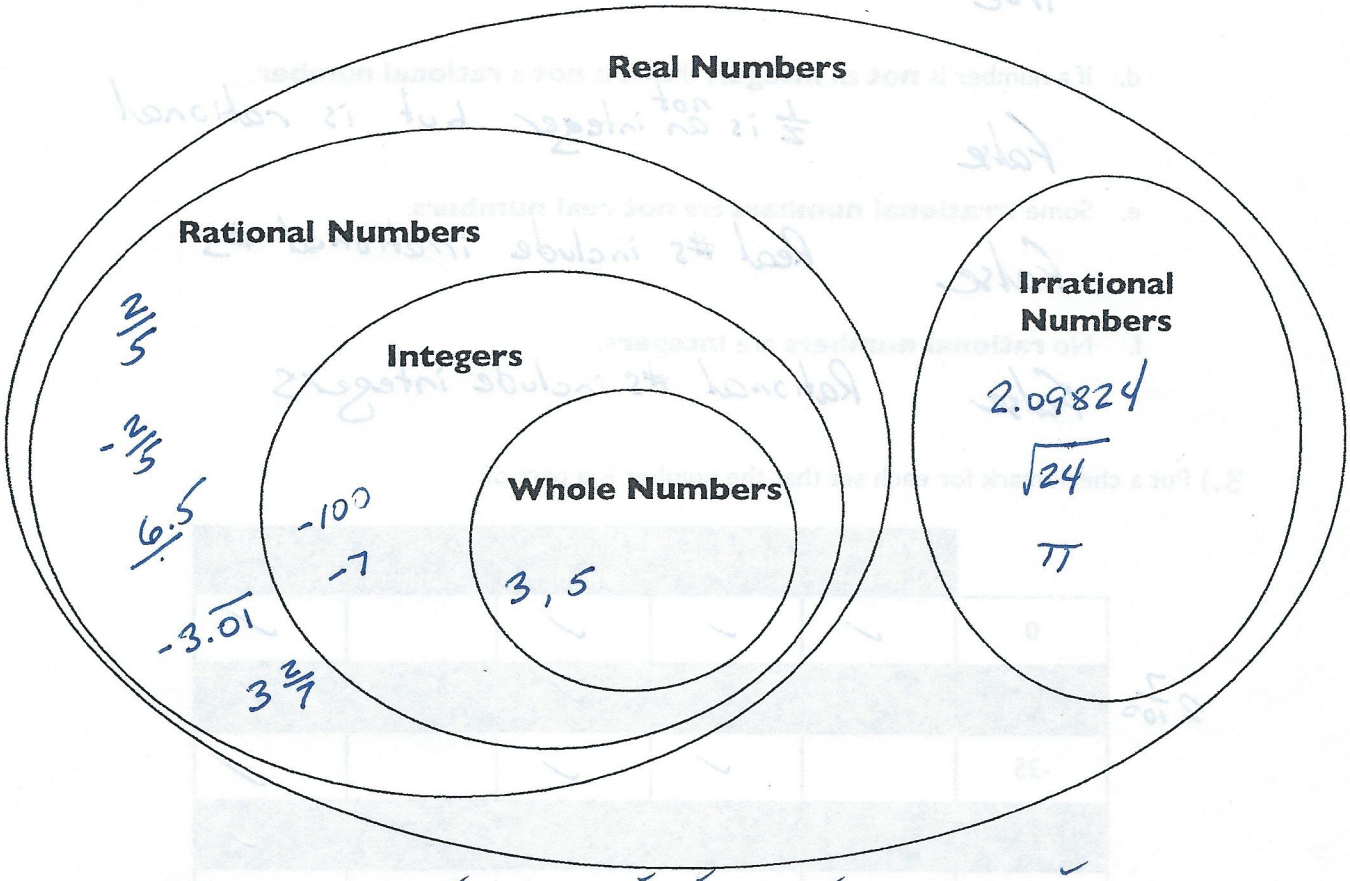
Integers - whole #s + their opposites

Rational - numbers that can be written as a fraction

Irrational - numbers that cannot be written as a fraction

1.) Write each number in the correct location on the Venn Diagram of the real number system. Each number should be written only once.

$\left\{3,\ 2.09824\ldots,\ \sqrt{25},\ \sqrt{24},\ \frac{2}{5},\ -100,\ -7,\ \pi,\ -\frac{2}{5},\ 6.5,\ -3.0\overline{1},\ 3\frac{2}{7}\right\}$



2.) List the numbers in the set $\left\{-17,\ 0,\ \sqrt{3},\ -\frac{1}{6},\ \frac{5}{7},\ 7.99,\ 8,\ \pi,\ 0.03986\ldots,\ 0.5\overline{3}\right\}$ that are:

Whole numbers 0, 8

Integers -17, 0, 8

Rational numbers $-17,\ 0,\ -\frac{1}{6},\ \frac{5}{7},\ 7.99,\ 0.5\overline{3}$

Irrational numbers $\sqrt{3},\ \pi,\ 0.03986\ldots$

Real numbers all of the above

19) True or false? If false, explain why.

a. Some **irrational numbers** are **integers**.

False

b. All **rational numbers** are **whole numbers.**

False

c. If a number is **not** an **integer**, then it is **not** a **whole number.**

True

d. If a number is **not** an **integer**, then it is **not** a **rational number.**

False $\frac{1}{2}$ is not an integer but is rational

e. Some **irrational numbers** are **not real numbers.**

False Real #s include irrational #s

f. No **rational numbers** are **integers.**

False Rational #s include integers

3.) Put a check mark for each set that the number is a part of:

	Whole Numbers	Integers	Rational Numbers	Irrational Numbers	Real Numbers
0	✓	✓	✓		✓
$2\frac{7}{100}$ (2.07)			✓		✓
-35		✓	✓		✓
$\sqrt{7}$				✓	✓
$\frac{7}{3}$			✓		✓

Challenge) Write each number in **fraction** form.

-25 $-\frac{25}{1}$	7 $\frac{7}{1}$	0.25 $\frac{25}{100} = \frac{1}{4}$	2.913 $2\frac{913}{1000}$
$3\frac{5}{7}$ ✓	0.002 $\frac{2}{1000}$	$8\frac{1}{9}$ ✓	0.5555... $.\overline{5}$ $\frac{5}{9}$

0.555...
irrational