

Curriculum Outcome

N1: Demonstrate an understanding of rational numbers by: comparing and ordering rational numbers; solving problems that involve arithmetic operations on rational numbers.

**Student Friendly:
How to identify and write rational numbers**



No talking try it on your own

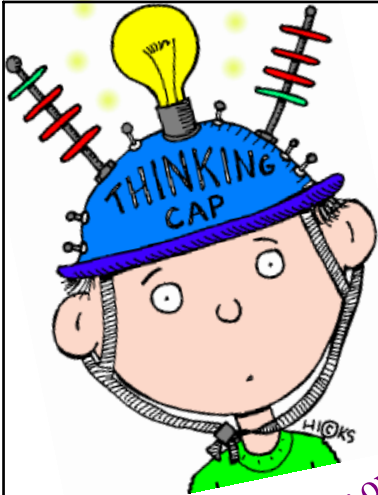
BEDMAS

Warm Up

Solve Each of The Following In Your Notebooks

1) $3 + 7(10-6) - 2 =$

2) $10 \times 5 + 3(12-3) =$



No talking try it on your own



Warm Up

Solve Each of The Following In Your Notebooks

$$1) \quad 3 + 7(10-6) - 2 =$$

$$3 + 7(4) - 2$$

$$3 + 28 - 2$$

$$31 - 2$$

$$29$$



No talking try it on your own

Warm Up

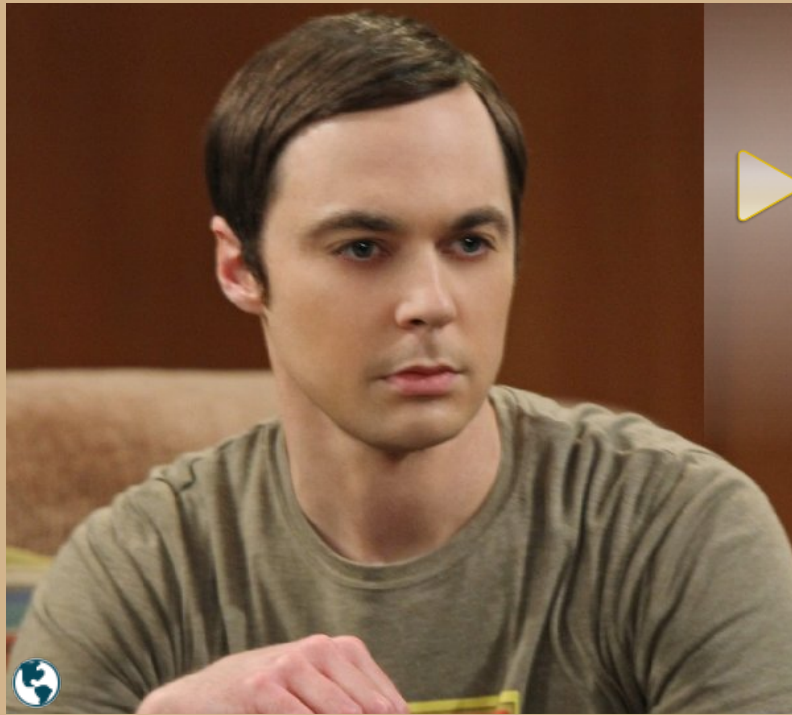
Solve Each of The Following In Your Notebooks

$$2) \quad 10 \times 5 + 3(12-3)$$

$$10 \times 5 + 3(9)$$

$$50 + 27$$

$$77$$



Chuck Norris of Numbers

THE NUMBER SYSTEM

π

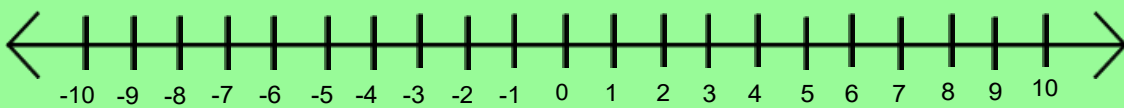
$\frac{1}{8}$

0

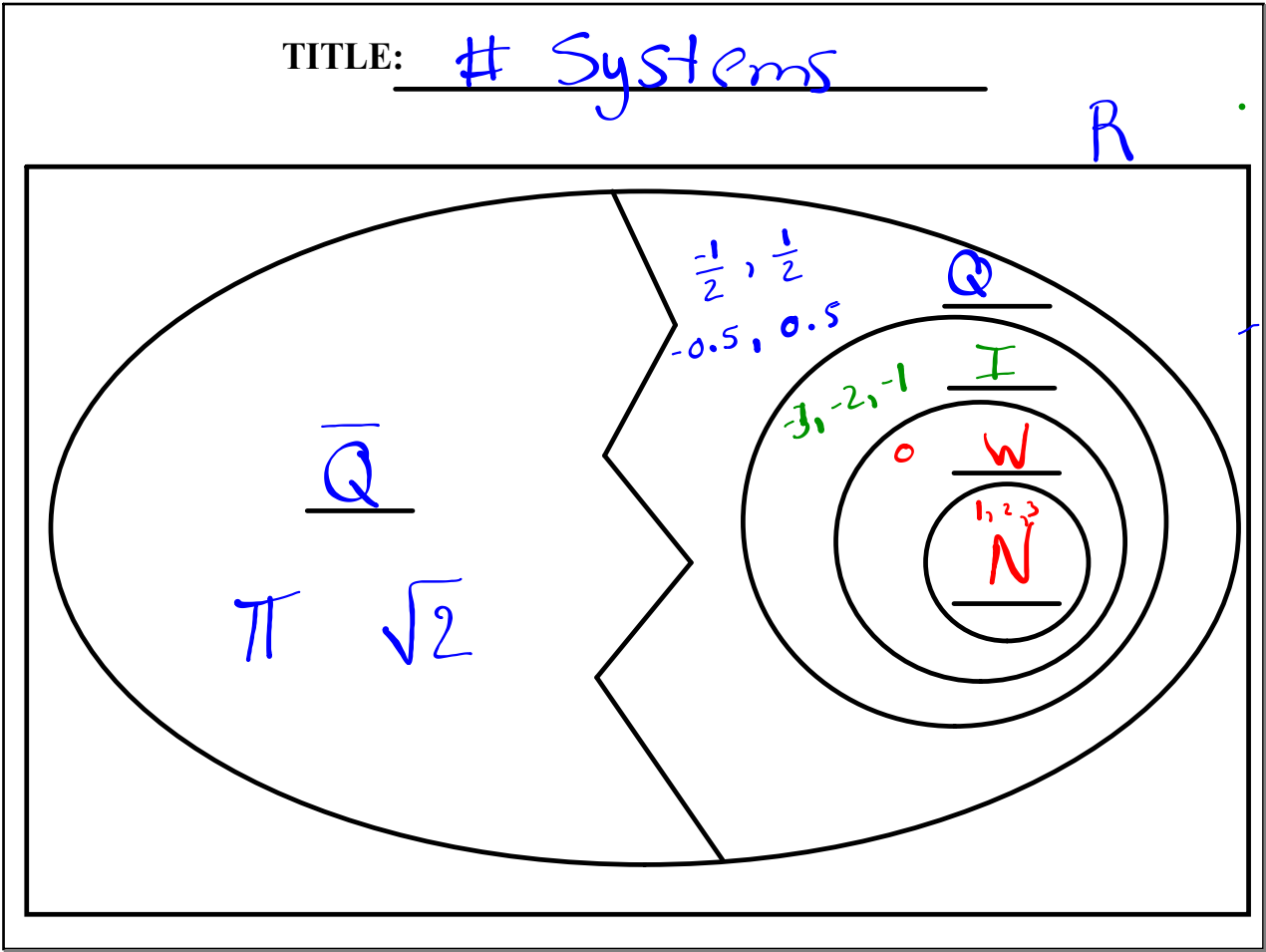
$\sqrt{7}$

$0.3333333\dots$

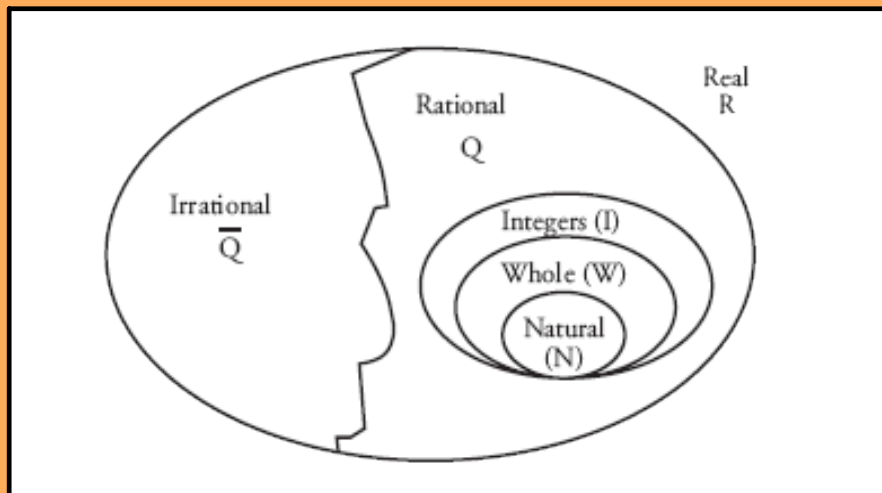
$1, 2, 3, 4, 5, 6\dots$



1 2 3	Natural Numbers	N
0 1 2 3 4 5 6 7 8 9	Whole Numbers	W
-1 0 1 2 3 4 5 6 7 8 9	Integers	I
$\frac{1}{2}$ $\frac{2}{3}$ $\frac{3}{4}$ $\frac{4}{5}$ $\frac{5}{6}$ $\frac{6}{7}$ $\frac{7}{8}$ $\frac{8}{9}$	Rational	Q
$\sqrt{2}$ $\sqrt{3}$ $\sqrt{5}$ $\sqrt{7}$ $\sqrt{11}$ $\sqrt{13}$ $\sqrt{17}$ $\sqrt{19}$	Irrational	\overline{Q}
	Real	R



Review of Types of Number Systems



THE NUMBER SYSTEM

N **Natural Numbers** : Counting numbers Ex. 1, 2, 3 etc

W **Whole Numbers**: Counting numbers including zero.
Ex. 0, 1, 2, 3, etc

I **Integers**: Are all positive and negative whole numbers.
Ex:3,2,1,0,-1-2,-3...

Q **Rational Numbers**: All whole numbers, fractions, decimals and their negatives. The decimal must repeat or terminate also.
Ex: 1/3, 4, 3/4

Q **Irrational Numbers**: Decimals that never terminate or repeat.
Ex: $\sqrt{2}$, 0.1324854752...

R **Real Numbers**: All rational and irrational numbers are real numbers
Ex: All possible numbers

Exercise
Complete the table

	N	W	I	$\frac{2}{1}$ Q	\bar{Q}	R
2	✓	✓	✓	✓		✓
-3			✓	✓		✓
π					✓	✓
0		✓	✓	✓		✓
$\frac{1}{4}$				✓		✓
-2.75				✓		✓
$\sqrt{15}$					✓	✓
$\sqrt{25}$ 5	✓	✓	✓	✓		✓

$$\sqrt{\quad} \quad \sqrt[2]{\quad}$$

$$15 \sqrt{\quad} =$$

$$\sqrt{\quad} 15 = 3.872983346$$

How to change a fraction to a decimal:

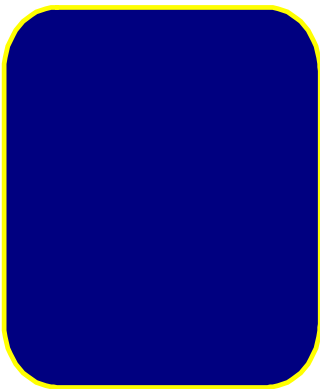
Take the top and
divide by the
bottom

$$\frac{3}{8}$$

$$3 \div 8 = 0.375$$



How to change a fraction to a decimal:



$$6 \frac{1}{5}$$

$$1 \div 5 = 0.2$$

$$6.2$$

$$6 \frac{1}{2} = \underline{\underline{6.5}}$$

$$7 \frac{1}{2} = \underline{\underline{7.5}}$$

Use a calculator to determine the value of each rational number.

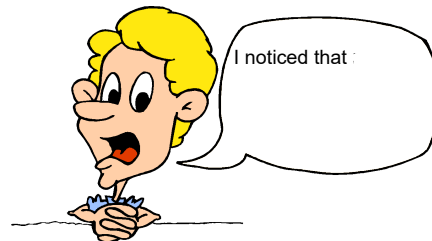


$$-\frac{7}{5} = -7 \div 5 = -1.4$$

$$-\frac{7}{5} = -(7 \div 5) = -1.4$$

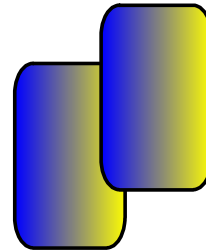
$$-\frac{7}{5} = 7 \div -5 = -1.4$$

What did you notice??



Write 2 more equivalent fraction to the following:

$$\boxed{\frac{-4}{9}} \quad \frac{4}{-9} \quad -\frac{4}{9}$$



always
want (neg)
on top

$$\frac{2}{3} + \frac{-5}{7}$$



The numerator is LARGER than the denominator.

Improper vs. Mixed Fractions



$\frac{7}{3}$ This is a **Improper Fraction** \rightarrow **Mixed Fraction**
Integer + Fraction

$$\frac{7}{3} = 2 \frac{1}{3}$$

You try:

$$\frac{15}{4} = -3 \frac{3}{4}$$

Mixed Fractions to Improper

$$2\frac{5}{6} = \frac{17}{6}$$

Diagram: A red arrow starts at the top of the '2' and points to the '5' in the numerator. A red 'x' is at the bottom of the '2'. A blue arrow starts at the bottom of the '2' and points to the '6' in the denominator.

$$3\frac{1}{8} = \frac{25}{8}$$

Diagram: A purple dot is next to the '3'. A purple arrow starts at the top of the '3' and points to the '1' in the numerator. A purple 'x' is at the bottom of the '3'. A blue arrow starts at the bottom of the '3' and points to the '8' in the denominator.

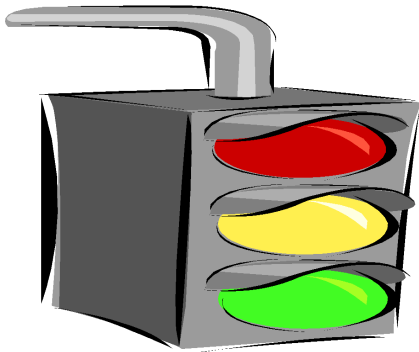
You Try

$$5\frac{3}{7} = \frac{38}{7}$$

Diagram: A red arrow starts at the top of the '5' and points to the '3' in the numerator. A red 'x' is at the bottom of the '5'. A blue arrow starts at the bottom of the '5' and points to the '7' in the denominator.

$$4\frac{1}{3} = \frac{13}{3}$$

Diagram: A red arrow starts at the top of the '4' and points to the '1' in the numerator. A red 'x' is at the bottom of the '4'. A blue arrow starts at the bottom of the '4' and points to the '3' in the denominator.



Class/Homework

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Questions:

5, 6, 7, and

-Fraction worksheet 1 & 2