SEPTEMBER 18, 2015

UNIT 1:   RATIONAL NUMBERS

SECTION 3.1:
WHAT IS A RATIONAL
NUMBER?

M. MALTBY INGERSOLL
MATH 9

WHAT'S THE POINT OF TODAY'S LESSON?

We will continue working on the Math 9 Specific Curriculum Outcome (SCO) "Numbers 3" OR "N3" which states:

"Demonstrate an understanding of rational numbers by: comparing and ordering rational numbers; solving problems that involve arithmetic operations on rational numbers."
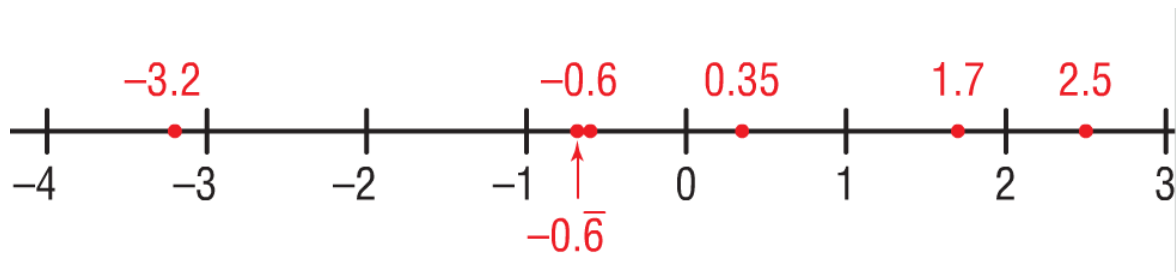
What does THAT mean???

SCO N3 means that we will compare and order (largest vs smallest), add, subtract, multiply and divide fractions and any numbers that can be written as fractions. For example, sometimes we will work with 1/2 or 0.5. We have to know how to work with both.

$0.35 \; ; \; 2.5 \; ; \; {-}0.6 \; ; \; 1.7 \; ; \; {-}3.2 \; ; \; {-}0.\overline{6}$

For least to greatest, read the numbers from left to right: $-3.2 \; ; \; -0.\overline{6} \; ; \; -0.6 \; ; \; 0.35 \; ; \; 1.7 \; ; \; 2.5$

WARM UP:

Use a number line. Order these rational numbers from least to greatest:

1.13 ; -10/3 ; -3.4 ; 2.$\overline{7}$; 3/7 ; -2 2/5 $-2\frac{2}{5}$

$= -3.\overline{3}$

$*$ $*$ $= 0....$

(-4) $(+3)$

$= -3\frac{1}{3}$

-3.4

-10/3 -2 2/5   3/7 1.13   2.$\overline{7}$

Number line from -4 to 3 with markings at -4, -3, -2, -1, 0, 1, 2, 3
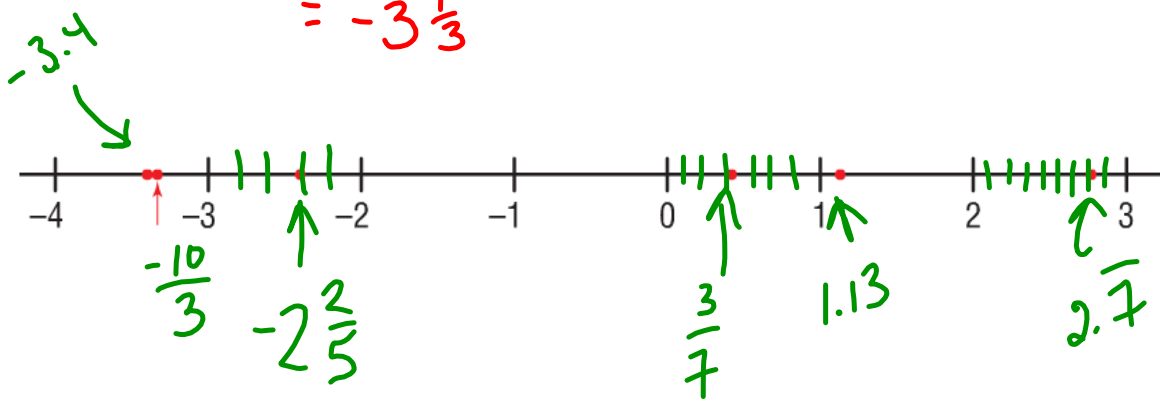
HOMEWORK QUESTIONS???
(page 103, #25ab)

COMPARING RATIONAL NUMBERS:

Rational numbers are similar to integers when you are deciding which one is larger than the other. Think of a number line... the one the furthest to the left is the smaller one, and the one the furthest to the right is the larger one. Also, with fractions, we sometimes use common denominators in order to compare. We use the denominators' LCM (lowest common multiple) as the common denominator.

2 :   2, 4, 6, 8, 10, 12 ...   } LCM = 6

3 :   3, 6, 9, 12, 15, 18 ...

4 :   4, 8, 12, 16, 20, 24 ...   } LCM = 44

11 :   11, 22, 33, 44, 55, 66 ...

13 :   13, 26, 39, 52, 65, 78 ...

Example:
$$\frac{3}{4} \; \bigcirc{>} \; \frac{5}{8}$$

$$LCM = 8$$

$$\frac{6}{8} \; \bigcirc{>} \; \frac{5}{8}$$

$>$ greater than

$<$ less than

$=$ equal to

ex: $-4\frac{3}{5}$ $\left(>\right)$ $-4\frac{5}{8}$ LCM = 40

        $-4\frac{24}{40}$ $\left(>\right)$ $-4\frac{25}{40}$

ex: $-4\frac{3}{5}$ $\boxed{>}$ $-4\frac{5}{8}$

$\dfrac{-23}{5}$ $\bigcirc$ $\dfrac{-37}{8}$ LCM = 40

$\dfrac{-184}{40}$ $\boxed{>}$ $\dfrac{-185}{40}$

Example: $\quad -1\dfrac{8}{9} \; \boxed{>} \; -2\dfrac{1}{6}$

HOW CAN I COMPARE A FRACTION AND A DECIMAL?

Example: $\dfrac{1}{5}$ $\boxed{<}$ **0.3**

0.2 $\boxed{<}$ 0.3

~~~~~~~~~~~~~~~~~~~~~~~~~

$\dfrac{1}{5}$ $\bigcirc\!\!<$ 0.3

$\dfrac{1}{5}$ $\bigcirc$ $\dfrac{3}{10}$ $Lcm = 10$

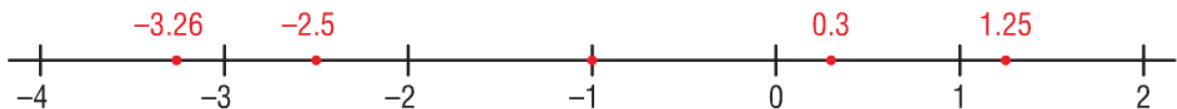$\dfrac{2}{10}$ $\boxed{<}$ $\dfrac{3}{10}$

PLEASE TURN TO PAGE 97 IN *MMS9.*

EXAMPLE 1: Writing a Rational Number
Between Two Given Numbers

a) -3.26 and 1.25 (I prefer to think of the
    numbers in the order in which they appear
    on a number line)
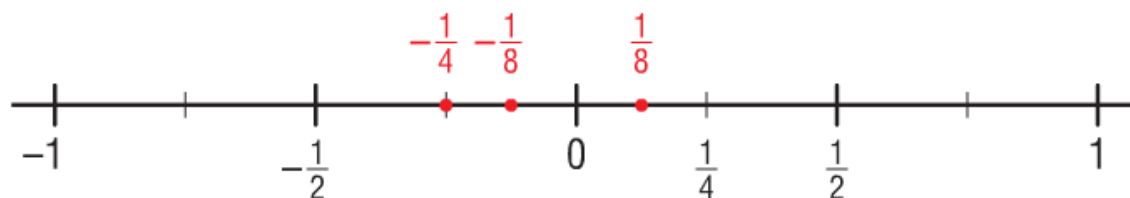
Label a number line with integers from −4 to 2.

From the number line, 3 possible rational numbers are:
−2.5, −1, and 0.3

c) -1/2 and 1/4

Label a number line from -1 to 1.
Divide the line into quarters.

From the number line, 3 possible rational numbers are:
$-\frac{1}{4}, -\frac{1}{8},$ and $\frac{1}{8}$

$$\frac{-1}{2}$$

$$\frac{1}{4}$$

$$\frac{-4}{8} \; , \; \frac{-3}{8} \; , \; \frac{-2}{8} \; , \; \frac{-1}{8} \; , \; \frac{0}{8} \; , \; \frac{1}{8} \; , \; \frac{2}{8}$$

$$=\frac{-1}{4}$$

*   *   *

*

CONCEPT REINFORCEMENT

MMS9:

PAGE 102:   #13, #14ae, #16, #17 & #21