SEPTEMBER 12, 2017

UNIT 1: RATIONAL NUMBERS

SECTION 3.2: ADDING RATIONAL NUMBERS

K. Sears
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???

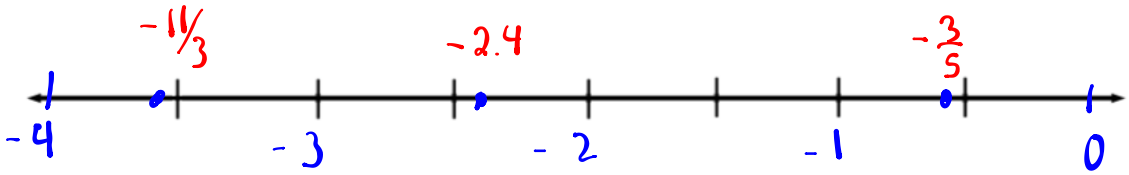
SCO N3 means that we will compare and order (largest vs smallest), add, subtract, multiply and divide fractions and any numbers that can be written as fractions. For example, sometimes we will work with 1/2 or 0.5. We have to know how to work with both.

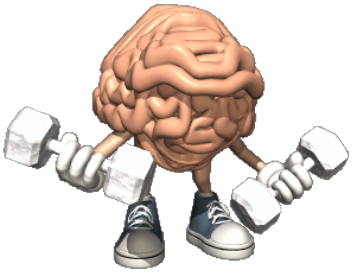
WARM UP:

a) Place the following rational numbers on a number line: -3/5 ; -11/3 ; -2.4

-0.6 -3.$\overline{6}$ -2.4

b) List the rational numbers from (a) in DESCENDING order.





1) Identify whether the number is rational or irrational

$\frac{2}{3}$	$1.\overline{66}$	1.234567.....	-2.25
$0.\overline{6}$ Q	Q	$\bar{Q}$	Q

2) Express each fraction as a decimal.

a) $\frac{4}{5}$ 0.8 b) $\frac{9}{6}$ = 1.5 c) $\frac{3}{11}$ = $0.\overline{27}$

3) Express each decimal as a fraction or mixed number.

a) **0.1** $\frac{1}{10}$

b) **4.75** $4\frac{75}{100}$ $4\frac{3}{4}$

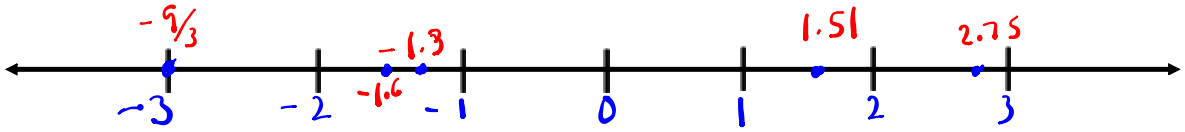
c) **-3.222** $-3\frac{222}{1000}$ $-3\frac{111}{500}$

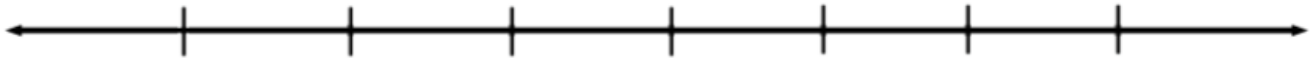
WARM UP! :-)

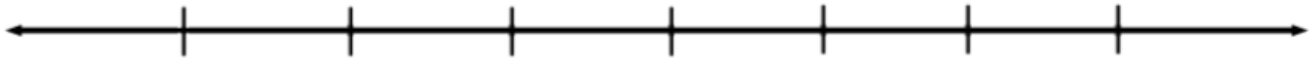
Sketch a number line. On the line, place each rational number below.

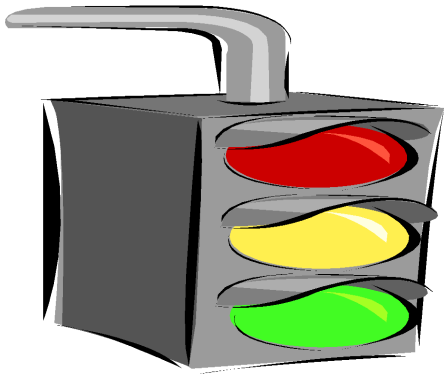
$$-1.3,\ 2\frac{3}{4},\ 1.51,\ -\frac{8}{5},\ -\frac{9}{3}$$

2.75 -1.6 -3









Homework:

Questions?

Pages 102-103,
#16, 17, 22bcd & 25

SECTION 3.2: ADDING RATIONAL NUMBERS

Remember - Rational numbers have many forms...

Natural Numbers:

Whole Numbers:

Integers:

Fractions (+ / -), Mixed Numbers:

Decimals (term./rep.):

Square Roots (perf. squrs.):

THE SIGN RULES FOR ADDING, SUBTRACTING, MULTIPLYING, AND DIVIDING RATIONAL NUMBERS:

Multiplication

$+ + = +$

$- - = +$

$+ - = -$

$- + = -$

$6 + (-2)$

If you use a calculator, make sure you know how to input negative numbers!

Example:

At 6 a.m., the temperature was -3 ^{o}C. By 10 a.m., the temperature had risen by 6 ^{o}C. What was the temperature at 10 a.m.?

$$-3 + 6$$
$$= \ 3\ ^{o}C$$

Example:

At the beginning of June, the Frosty Snow Blower Company was $235.46 in debt. By the end of August, the company had increased its debt by $156.71.

a) Use a rational number to represent each amount. -235.46 and -156.71

b) Calculate how much debt the company had at the end of August.

$$\begin{aligned} & -235.46 + (-156.71) \\ = \; & -235.46 - 156.71 \\ = \; & -392.17 \end{aligned}$$

Solve:

a) **-6.5 + 2.3**

-4.2

b) **9.75 + (-5.14)**

4.61

c) **-0.235 + (-52.3)**

-52.535

ADDING RATIONAL NUMBERS IN FRACTION FORM:

To add fractions, they must have a COMMON, POSITIVE denominator. Then, ONLY the NUMERATORS are added working from left to right. Reduce answers where necessary.

ADDING FRACTIONS -

Examples:

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

$$\frac{1}{4}+\frac{2}{3}=\frac{3}{12}+\frac{8}{12}=\frac{11}{12}$$

ADDING FRACTIONS -

Example:

$$4\frac{1}{4} + 1\frac{3}{8}$$

$= \frac{17}{4} + \frac{11}{8}$

$= \frac{34}{8} + \frac{11}{8}$

$= \frac{45}{8}$

$= 5\frac{5}{8}$

$$4\frac{1}{4} + 1\frac{3}{8}$$

$4\frac{2}{8} + 1\frac{3}{8}$

$5\frac{5}{8}$

ADDING FRACTIONS -

Example:

$$-3\frac{1}{3} + 2\frac{5}{6}$$

$= -\frac{10}{3} + \frac{17}{6}$

$-\frac{20}{3} + \frac{17}{6}$

$-\frac{3}{6}$

$-\frac{1}{2}$

$-3\frac{2}{6} + 2\frac{5}{6}$

$-1 + \frac{3}{6}$ * complicated

$-\frac{6}{6} + \frac{3}{6}$

$-\frac{3}{6}$

$-\frac{1}{2}$

CONCEPT REINFORCEMENT:

MMS9:

Page 111: 5, 7
Page 112: 9 (no estimates), 10 - 14, and 15ab (not c)
Page 113: 16 -18, 20, and 21

(All answers in the form of improper fractions are expressed as mixed numbers in the back of the book except for #14.)