SEPTEMBER 19, 2019

UNIT 1:   RATIONAL NUMBERS

SECTION 3.4:
MULTIPLYING RATIONAL
NUMBERS

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MATH 9

Sep 18-3:53 PM

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."

Sep 18-3:53 PM

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.

Sep 18-3:53 PM

Warm-Up

Evaluate the following expressions:

$$\frac{3^{\times 6}}{5} - \left(-\frac{1}{2}\right)^{\times 15} + \frac{2^{\times 10}}{3} = \frac{18}{30} + \frac{15}{30} + \frac{20}{30}$$

$$= \frac{53}{30}$$

$$= 1\frac{23}{30}$$

$$23.5 \boxed{+ (-)12.61} - 3.2$$

$$= 7.69$$

Sep 18-9:28 AM

2

SECTION 3.4:   MULTIPLYING RATIONAL NUMBERS

THE SIGN RULES FOR MULTIPLYING RATIONAL NUMBERS:

$$(+) \times (+) = +$$
$$(-) \times (-) = +$$
$$(+) \times (-) = -$$
$$(-) \times (+) = -$$

Nov 15-3:06 PM

There are several ways to demonstrate multiplication:

$$\frac{1}{2} \times \frac{1}{3} = \frac{1}{6} \qquad \left(\frac{1}{2}\right)\left(\frac{1}{3}\right) = \frac{1}{6}$$

$$\frac{1}{2}\left(\frac{1}{3}\right) = \frac{1}{6} \qquad \frac{1}{2} \bullet \frac{1}{3} = \frac{1}{6}$$
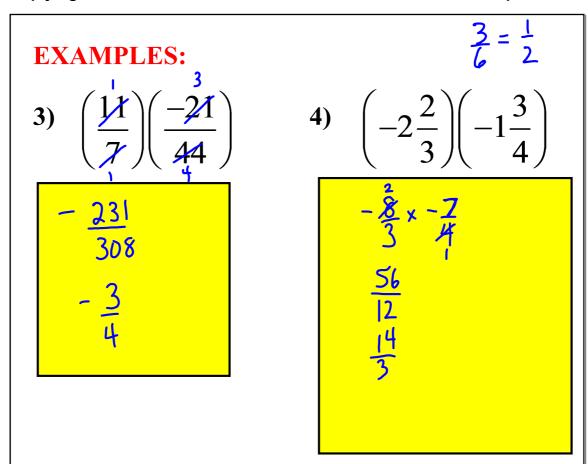
Nov 15-2:21 PM

MULTIPLYING RATIONAL NUMBERS IN FRACTION FORM:

To multiply fractions, simply multiply numerators then denominators. If there are more than two fractions, work from left to right. Reduce answers where necessary.

Nov 22-1:56 PM

EXAMPLES:

1)   (-1.5)(-1.8)
   = 2.7

2) $\left(\dfrac{3}{2}\right)\left(\dfrac{1}{5}\right)$

   $= \dfrac{3}{10}$

Nov 22-1:31 PM

EXAMPLES:

$$\frac{3}{6} = \frac{1}{2}$$

3) $\left(\dfrac{\overset{1}{\cancel{11}}}{\underset{1}{\cancel{7}}}\right)\left(\dfrac{\overset{3}{\cancel{-21}}}{\underset{4}{\cancel{44}}}\right)$

$$-\frac{231}{308}$$

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

4) $\left(-2\dfrac{2}{3}\right)\left(-1\dfrac{3}{4}\right)$

$$-\frac{\overset{2}{\cancel{8}}}{3} \times \frac{-7}{\underset{1}{\cancel{4}}}$$

$$\frac{56}{12}$$

$$\frac{14}{3}$$

Nov 22-1:38 PM

EXAMPLES:

5) **On February 5, 2008, the price of a share in CIBC changed by -$1.640. A person owns 35 shares. By how much did those shares change in value that day?**

$$(35)(-1.640)$$
$$= \$-57.40$$

The value of the shares decreased by $57.40 that day.

Nov 22-1:48 PM

5

EXAMPLES: π $3.14....$ $\dfrac{2}{3}$ $0.\overline{6}$

6) **Please note that fractions are more accurate than repeating or non-terminating, non-repeating decimals.**

ex.: $\dfrac{2}{3}$ **is more accurate than $0.\overline{6}$. Why?**

$0.\overline{6}$ will end up getting rounded to 0.7 in a calculation which alters the accuracy of the calculation.

Nov 22-1:51 PM

CONCEPT REINFORCEMENT:

MMS9:

Page 127:   **#6 and 7**
Page 128:   **#9, 10, 11, 12, and 14**
Page 129:   **#15**

Return signed permission sheets.

Nov 15-2:18 PM