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UNIT 1:   RATIONAL NUMBERS

SECTION 3.5: DIVIDING RATIONAL NUMBERS

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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:

Determine each product.

a) $3.5 \times (-0.3)$

$= -1.05$

b) $(-4.1)(2.3)$

$= -9.43$

c) $\left(-\dfrac{4}{7}\right)\left(-\dfrac{2}{3}\right)$

$= \dfrac{8}{21}$

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

$= \dfrac{\overset{4}{\cancel{8}}}{\underset{1}{\cancel{5}}} \times \dfrac{\overset{-1}{\cancel{-5}}}{\underset{1}{\cancel{2}}}$

$= -4$

HOMEWORK QUESTIONS???
(pages 127 / 128 / 129, #6, 7, 9 TO 12, 14 & 15)

c   b

$$12. \ c) \quad \left(-2\frac{8}{9}\right)\left(5\frac{1}{8}\right)$$

$$= \quad \frac{-26}{9}\left(\frac{41}{8}\right) \qquad \overset{-13}{} \quad _4$$

$$= \quad \frac{-533}{36}$$

$$= \quad -14\frac{29}{36}$$

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HOMEWORK QUESTIONS???
(pages 127 / 128 / 129, #6, 7, 9 <u>TO</u> 12, 14 & 15)

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14. a) $\$3457.25 \times 25$

       $= \$86\ 431.25$

   b) $\$45\ 567.87$

       $-\ \$86\ 431.25$

       $-\ \$40\ 860.38$

HOMEWORK QUESTIONS???
(pages 127 / 128 / 129, #6, 7, 9 TO 12, 14 & 15)

15. b) $\left(\dfrac{5}{6}\right)\left(\dfrac{-4}{7}\right)\left(\dfrac{3}{2}\right)$

$= \dfrac{-5}{7}$

$\dfrac{-60}{84}$ $\div 12$
        $\div 12$

SECTION 3.5:   DIVIDING RATIONAL NUMBERS

THE SIGN RULES FOR DIVIDING RATIONAL NUMBERS:

$$(+) \div (+) = +$$

$$(-) \div (-) = +$$

$$(+) \div (-) = -$$

$$(-) \div (+) = -$$

EXAMPLES:

1) $(-1.38) \div 0.6$
    $= -2.3$

2) $(-0.25) \div (-0.3)$
    $= 0.8\overline{3}$

EXAMPLES:

3) $\left(\dfrac{-5}{8}\right) \div \dfrac{3}{4}$ $Lcm = 8$

$= \left(\dfrac{-5}{8}\right) \div \dfrac{6}{8}$ **(common denominator)**

$= \dfrac{-5}{6}$ **(divide numerators)**

DIVIDING RATIONAL NUMBERS IN FRACTION FORM:

To divide fractions, multiply the first fraction (the "dividend") by the reciprocal of the second fraction (the "divisor"). If there are more than two fractions, work from left to right. Reduce answers where necessary.

RECIPROCALS:

Two numbers whose product is always +1. Basically, turn the fraction upside down.

Example: $\dfrac{2}{3}$ *and* $\dfrac{3}{2}$

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

$$= 1$$

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

$$= \dfrac{-1}{-1}$$

$$= 1$$

EXAMPLES:

3)
$$\left(\frac{-5}{8}\right) \div \frac{3}{4}$$

$$= {}_2\left(\frac{-5}{8}\right) \times \frac{4}{3} \qquad \text{reciprocal}$$

$$= \frac{-5}{6}$$

EXAMPLES:

4) $\left(-4\dfrac{1}{5}\right) \div \left(-3\dfrac{1}{3}\right)$ **METHOD 1**

$= \left(\dfrac{-21}{5}\right) \div \left(\dfrac{-10}{3}\right)$ $\text{LCM} = 15$

$= \left(\dfrac{-63}{15}\right) \div \left(\dfrac{-50}{15}\right)$

$= \dfrac{-63}{-50}$

$= 1\dfrac{13}{50}$

EXAMPLES:

4)
$$\left(-4\frac{1}{5}\right) \div \left(-3\frac{1}{3}\right) \quad \textcolor{blue}{\textbf{METHOD 2}}$$

$$= \left(\frac{-21}{5}\right) \div \left(\frac{-10}{3}\right)$$

$$= \left(\frac{-21}{5}\right) \times \left(\frac{-3}{10}\right)$$

$$= \frac{63}{50}$$

$$= 1\frac{13}{50}$$

CONCEPT REINFORCEMENT:

MMS9:

Page 134:   **#3 & #4**
Page 135:   **#6 ("mean"="avg."), #8, #11 & #12**
Page 136:   **#15**