

Name _____

Date _____

Mr. Tallman

Math 7

Lesson #15 - Multiplying and Dividing Fractions**Recall:**

- When multiplying and dividing integers with the same sign, the product/quotient will always be positive.
- When multiplying and dividing integers with different signs, the product/quotient will always be negative.

How to Multiply Fractions:

Example 1) Multiply. REMEMBER: Turn all mixed numbers into improper fractions

<p>A) $-11 \cdot 2$</p> <p>-22</p>	<p>B) $-2\frac{3}{4} \cdot \frac{2}{5}$</p> <p>$\frac{-11}{4} \cdot \frac{2}{5} = \frac{-11 \cdot 2}{4 \cdot 5} = \frac{-22}{20} = \frac{-11}{10}$</p>
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Now, You Try! Evaluate each of the following.

<p>2) $\frac{2}{1} \cdot \left(-\frac{2}{2}\right)$</p> <p>$\frac{-4}{1} = -4$</p>	<p>3) $-\frac{2}{3} \cdot 1\frac{3}{5}$</p> <p>$\frac{-2}{3} \cdot \frac{8}{5} = \frac{-16}{15} = -1\frac{1}{15}$</p>	<p>4) $\left(-\frac{3}{1}\right) \cdot \frac{1}{1}$</p> <p>$-3$</p>
<p>5) $\frac{1}{3} \cdot \left(-\frac{1}{1}\right) \cdot \frac{3}{5}$</p> <p>$\frac{-1}{3} \cdot \frac{3}{5} = \frac{-1 \cdot 3}{3 \cdot 5} = \frac{-3}{15} = -\frac{1}{5}$</p>	<p>6) $-\frac{2}{9} + \frac{1043}{3 \cdot 3}$ LCO: 9</p> <p>$\frac{-2}{9} + \frac{28}{9} = \frac{26}{9} = 2\frac{8}{9}$</p>	<p>7) $-\frac{3}{8} \cdot \left(2\frac{1}{4}\right)$</p> <p>$\frac{-3}{8} \cdot \frac{9}{4} = \frac{-27}{32}$</p>

How to Divide Fractions:

Example 8) Divide the following: $\frac{2}{3} \div 1\frac{1}{5}$

<u>Steps</u>	<u>Example</u>
1) Convert ALL mixed numbers into improper fractions.	$\frac{2}{3} \div 1\frac{1}{5}$
2) CHANGE the operation to multiplication and take the RECIPROCAL of the second fraction.	$\frac{2}{3} \cdot \frac{5}{3}$
3) Multiply. Remember to follow multiplication rules. Simplify if necessary.	$\frac{10}{9}$

Example 9) Divide the following.

A) $\frac{2}{5} \div -\frac{1}{2}$ $\frac{2}{5} \cdot (-\frac{2}{1})$ $-\frac{4}{5}$	B) $\frac{-2}{3} \div (-5)$ $\frac{-2}{3} \cdot \frac{1}{5} = \frac{2}{15}$
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Think about it...

Example 10) Evaluate the following:

$$\frac{7}{\frac{10}{2} - \frac{1}{5}}$$

$$\frac{7}{5} \div \frac{-2}{5}$$
$$\frac{7}{5} \cdot \frac{5}{-2} = -\frac{7}{2} = -\frac{13}{2}$$

Now, You Try! Evaluate the following.

<p>11) $-5 \div \frac{2}{3}$</p> <p>$-\frac{5}{1} \cdot \frac{3}{2} = -\frac{15}{2} = -7\frac{1}{2}$</p>	<p>12) $\frac{-5}{2} \cdot \left(-\frac{2}{3}\right)$</p> <p>$\frac{5}{3}$</p>	<p>13) $3\frac{1}{2} \div \left(-4\frac{2}{7}\right)$</p> <p>$\frac{7}{2} \cdot \frac{7}{30} = -\frac{49}{60}$</p>
<p>14) $-2\frac{5}{9} + \left(+3\frac{1}{3}\right)$ LCM: 9</p> <p>$-\frac{23}{9} + \frac{10 \times 3}{3 \times 3} = -\frac{23}{9} + \frac{30}{9} = \frac{7}{9}$</p>	<p>15) $-\frac{4}{13} \div \left(-\frac{4}{13}\right)$</p> <p>1</p>	<p>16) $\frac{2}{3} \div \left(-\frac{2}{5}\right)$</p> <p>$\frac{2}{3} \cdot \frac{5}{2} = \frac{10}{6} = -\frac{5}{3}$</p>

17) Janet's height is $36\frac{1}{2}$ inches. Her older brother Mike is $54\frac{3}{4}$ inches tall. **How many times taller** is Mike than Janet?

18) A recipe calls for $\frac{2}{3}$ of a cup of flour per servings. How many cups of flour should you use if you are making $3\frac{1}{2}$ servings?

