

2.4 Part 1: Multiplying Rational Numbers

To multiply **rational numbers**,
use the same rules that you used for
INTEGERS

same signs = positive solution
different signs = negative solution

same sign = positive

$$8 * 3 = 24$$

$$-5(-6) = 30$$

different sign = negative

$$-4 * 9 = -36$$

$$10(-8) = -80$$

Multiplying Fractions/Mixed Numbers

- **Change to improper Fractions**
- **Multiply numerators**
- **Multiply denominators**
- **Simplify!**

Multiplying Fractions

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$$-\frac{5}{6} * \frac{3}{5} = -\frac{15}{30} = -\frac{1}{2}$$

$$\frac{2}{3} \left(-\frac{5}{6} \right) = -\frac{10}{18} = -\frac{5}{9}$$

✓

**Don't Need
Common Denominators!!!**

$$-8 * \left(-\frac{1}{6} \right)$$

$$\frac{-8}{1} \left(-\frac{1}{6} \right)$$

$$\frac{8}{6} = 1\frac{2}{6} = 1\frac{1}{3}$$

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$$\begin{array}{c} 8+ \\ \uparrow \\ 1\frac{3}{8} \end{array} * \begin{array}{c} 12+ \\ \uparrow \\ 4\frac{2}{3} \end{array}$$
$$4\frac{11}{8} \cdot \frac{14}{3} = \frac{77}{12}$$
$$\left(6\frac{5}{12}\right)$$

$$-2\frac{3}{4} * \left(-5\frac{1}{2}\right)$$
$$-\frac{11}{4} \cdot \left(-\frac{11}{2}\right)$$
$$\frac{121}{8} = \left(15\frac{1}{8}\right)$$
$$8 \overline{)121}$$

Multiplying Decimals

- Multiply (**ignore decimals until solution**)
- Count decimal places in problem
- Match that many decimal places in the solution

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$$2.3(-1)$$

$$\begin{array}{r} * 2.3 \\ \underline{} \\ -2.3 \end{array}$$

$$-5.8 \cdot 3.4$$

$$\begin{array}{r} \overset{2}{\underset{3}{*}} 58 \\ \underline{} \\ 232 \\ 1740 \\ \hline -19.72 \end{array}$$

$$-10.9(-6.3)$$

$$\begin{array}{r} + \overset{5}{\underset{2}{*}} 109 \\ \underline{} \\ 327 \\ 6540 \\ \hline 686.7 \end{array}$$

Multiplying More than One Rational Number

- **Multiply from left to right**
- **Complete one step at a time**

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$$\begin{array}{l} \underline{-2(0.04)(-1.3)} \\ \begin{array}{r} 4 \\ 2 \\ \hline 0.08 \end{array} (-1.3) \\ \begin{array}{r} 13 \\ 8 \\ \hline 104 \end{array} \end{array} \quad \text{0.104}$$

$$\begin{array}{l} \underline{-\frac{1}{2}\left(-\frac{3}{5}\right)\left(-\frac{6}{15}\right)} \\ \frac{\cancel{13}}{5\cancel{10}} \left(-\frac{\cancel{63}}{\cancel{155}} \right) = \frac{-18}{150} \\ -\frac{3}{25} \end{array}$$

Homework
pg 68 and 69

#3, 5, #7-9,
#22-30, and #42