

## Multiplying Fractions (5-4)

| Multiplying Fractions |                                    |
|-----------------------|------------------------------------|
| Step 1                | Multiply the <u>numerators</u> .   |
| Step 2                | Multiply the <u>denominators</u> . |
| Step 3                | <u>simplify</u> , if possible.     |

**Example 1:** Multiply the whole numbers by the fraction.

| I Do   | You Do   |
|--|--|
| $\frac{12}{17} \cdot \frac{-5}{18} = \frac{-10}{51}$ <p>Handwritten notes: <math>\frac{12}{17} \cdot \frac{-5}{18} = \frac{-10}{51}</math> with a pink '2' above the 12, a pink '3' below the 18, and a pink '3' to the right of the fraction. A purple box encloses the final result <math>\frac{-10}{51}</math>. To the left, a vertical stack of numbers is written: 17, 3, 51.</p> | $-\frac{9}{16} \cdot -\frac{12}{21} = \frac{9}{28}$ <p>Handwritten notes: <math>-\frac{9}{16} \cdot -\frac{12}{21} = \frac{9}{28}</math> with a pink '-3' above the 9, a pink '-3' below the 21, and a pink '-3' to the right of the fraction. A purple box encloses the final result <math>\frac{9}{28}</math>.</p> |

**Example 2:** You are filling your pool for the summer. You garden hose uses  $4\frac{3}{4}$  gallons of water a minute

| I Do   | You Do   |
|--|--|
| <p>If you are filling your pool for 30 minutes, how much water is in it?</p> $4\frac{3}{4} \cdot 30$ $2\frac{19}{4} \cdot \frac{30}{1} = \frac{285}{2}$ $= 142\frac{1}{2} \text{ gallons}$ | <p>If you are filling your pool for 3 hours, how much water is in it?</p> <p>180 minutes</p> $4\frac{3}{4} \cdot \frac{180}{1} = 904\frac{5}{4}$ $= 855 \text{ gallons}$ |

**Example 3:** Multiply the mixed numbers. *change to improper 1st*

| I Do  | You Do   |
|---|--|
| $-11\frac{2}{5} \cdot 7\frac{3}{4}$ $-\frac{57}{5} \cdot \frac{31}{4} =$ $\frac{-1767}{20} = -88\frac{7}{20}$ | $-10\frac{1}{2} \cdot 5\frac{3}{10}$ $-\frac{21}{2} \cdot \frac{53}{10} =$ $\frac{-1113}{20} = -55\frac{13}{20}$ |

$$x^4 \cdot x^2 = x^6$$

**Example 4:** Simplify each expression.

| I Do  | You Do   |
|---|--|
| $-\frac{2}{5} \cdot \frac{3y}{4}$ $-\frac{\cancel{2}}{\cancel{5}^2} \cdot \frac{3y}{\cancel{4}_2} = \frac{-3y}{10}$ | $\frac{1x^4}{2} \cdot \frac{3x^2}{10} = \frac{3x^6}{20}$ |