

Lesson 4-4 Notes  
Multiplying Fractions

REVIEW:

$$-2 \times 5 = -10$$

$$-4 \cdot (-3) = 12$$

$$5(7) = 35$$

What happens when you multiply fractions?

$$\frac{2}{3} \cdot \frac{1}{4} = \frac{2}{12} = \frac{1}{6}$$

← You can think of this as “two-thirds of one-fourth”  
(Remember the paper folding activity)

The “easy” way to multiply fractions is to multiply the numerators, then multiply the denominators, then simplify.

$$\frac{3}{7} \cdot \frac{2}{4} = \frac{3 \cdot 2}{7 \cdot 4} = \frac{6}{28} = \frac{3}{14}$$

You try!

$$\frac{2}{5} \left( \frac{1}{3} \right) = \boxed{\frac{2}{15}}$$

$$-\frac{5}{6} \times \frac{2}{3} = -\frac{10}{18} = \boxed{-\frac{5}{9}}$$

$$-\frac{1}{4} \left( -\frac{3}{8} \right) = \boxed{\frac{3}{32}}$$

$$\frac{7}{8} \cdot \frac{5}{9} = \boxed{\frac{35}{72}}$$

You can also try simplifying before you multiply to make things a little easier.

$$\frac{\overset{1}{\cancel{9}}}{\underset{3}{\cancel{15}}} \cdot \frac{\overset{1}{\cancel{5}}}{\underset{1}{\cancel{9}}} = \boxed{\frac{1}{3}}$$

$$\frac{9}{15} \cdot \frac{5}{9} = \frac{45}{135} = \frac{\overset{4}{\cancel{3}} \cdot \overset{15}{\cancel{9}}}{\underset{9}{\cancel{9}} \cdot \underset{15}{\cancel{15}}} = \frac{1}{3}$$

$$\frac{\overset{2}{\cancel{2}}}{\underset{1}{\cancel{4}}} \cdot \frac{\overset{2}{\cancel{8}}}{11} = \boxed{\frac{4}{11}}$$

## Multiplying Mixed Numbers

Central Park in New York City is a rectangle. It is approximately  $2\frac{1}{2}$  mi long and  $\frac{1}{2}$  mi wide. What is the area of Central Park?

$$2\frac{1}{2} \times \frac{1}{2}$$

$$\frac{5}{2} \times \frac{1}{2} = \frac{5}{4} = \boxed{1\frac{1}{4}}$$

$$4 \overline{)5} \begin{array}{r} 1\ r1 \\ 4 \\ \hline 1 \end{array}$$

When multiplying mixed numbers, first write them as improper fractions, then multiply and simplify. Write answers as mixed numbers when possible.

$$3\frac{3}{4} \cdot \frac{2}{5} =$$

$$\frac{15}{4} \cdot \frac{2}{5} = \frac{30}{20} = \frac{3}{2} = \boxed{1\frac{1}{2}}$$

$$\frac{2}{3} \cdot 1\frac{2}{7} =$$

$$\frac{2}{3} \cdot \frac{9}{7} = \frac{18}{21} = \boxed{\frac{6}{7}}$$

$$\left(-2\frac{5}{6}\right) \cdot 1\frac{3}{5} =$$

$$-\frac{17}{3} \cdot \frac{8}{5} = -\frac{68}{15}$$

$$15 \overline{)68} \begin{array}{r} 4\ r8 \\ 60 \\ \hline 8 \end{array}$$

$$\begin{array}{r} 17 \\ \times 4 \\ \hline 68 \end{array}$$

$$= \boxed{-4\frac{8}{15}}$$