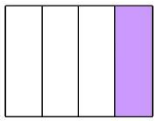
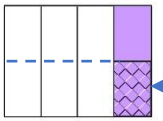
Check Your Answers on Multiplying Fractions!

1. $\frac{1}{8}$ $\left(\frac{1}{2} \cdot \frac{1}{4} = \frac{1}{8}\right)$



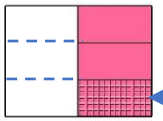
Shaded area is one-fourth of the rectangle (one part out of four congruent parts).



This part is half of one-fourth of the rectangle (which is now one part out of 8 congruent parts of the rectangle).

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

Shaded area is one-half of the rectangle (one part out of two congruent parts).



This part is a third of one-half of the rectangle (which is now one part out of 6 congruent parts of the rectangle).

3. $\frac{1}{12}$

(rope cut into three congruent parts)

This section is one-twelfth of the rope length.

(each section or third of the rope cut into four congruent parts)

4. $\frac{1}{4}$ $\left(\frac{1}{3} \cdot \frac{3}{4} = \frac{3}{12} = \frac{1}{4}\right)$

Although it is possible to draw a diagram to visualize one-third of three-fourths, it is simpler to remember that "of" usually indicates multiplication. Multiplication does not require "like" terms; multiply numerator by numerator and denominator by denominator, then simplify if necessary.

5. $\frac{3}{20}$ $\left(\frac{1}{4} \cdot \frac{3}{5} = \frac{3}{20}\right)$

Multiplication does not require common denominators (adding and subtracting fractions require "like terms"). Multiply numerator by numerator and denominator by denominator.

6. $\frac{2}{7}$ $\left(\frac{2}{5} \cdot \frac{5}{7} = \frac{10}{35} \div \frac{5}{5} = \frac{2}{7}\right)$

It is possible to simplify before multiplying: $\left(\frac{2}{\cancel{5}} \cdot \frac{\cancel{5}}{7} = \frac{2}{7}\right)$

7. $\frac{4}{9}$ $\left(\frac{5}{6} \cdot \frac{24}{45} = \frac{120}{270} \div \frac{30}{30} = \frac{4}{9}\right)$

It is definitely ***easier*** to simplify before multiplying: $\left(\frac{\overset{1}{\cancel{5}}}{\underset{1}{\cancel{6}}} \cdot \frac{\overset{4}{\cancel{24}}}{\underset{9}{\cancel{45}}} = \frac{4}{9}\right)$

8. $\frac{5}{2}$ $\left(\frac{15}{4} \cdot \frac{40}{60} = \frac{600}{240} \div \frac{120}{120} = \frac{5}{2}\right)$

Simplify before multiplying as shown to the right but don't forget to simplify completely!

$$\left(\frac{\overset{1}{\cancel{15}}}{\underset{1}{\cancel{4}}} \cdot \frac{\overset{10}{\cancel{40}}}{\underset{4}{\cancel{60}}} = \frac{10}{4} \div \frac{2}{2} = \frac{5}{2}\right)$$

9. $4\frac{1}{6}$

Many ways to simplify! Look for common factors between the numerator and denominator.

$$\left(\frac{\overset{5}{\cancel{20}}}{\underset{1}{\cancel{6}}} \cdot \frac{\overset{1}{\cancel{24}}}{\underset{3}{\cancel{12}}} \cdot \frac{\overset{5}{\cancel{30}}}{\underset{2}{\cancel{48}}} = \frac{25}{6} = 4\frac{1}{6}\right)$$

10. $1\frac{1}{2}$

One way to simplify before multiplying:

$$\frac{\overset{1}{\cancel{18}}}{\underset{4}{\cancel{48}}} \cdot \frac{\overset{1}{\cancel{24}}}{\underset{1}{\cancel{30}}} \cdot \frac{\overset{3}{\cancel{36}}}{\underset{1}{\cancel{24}}} \cdot \frac{\overset{2}{\cancel{60}}}{\underset{1}{\cancel{18}}} = \frac{6}{4} = \frac{3}{2} = 1\frac{1}{2}$$

Perfect score? Yes! You've got this!! You're ready to move on to the next section!!!