Canceling to Simplify Multiplication

When multiplying fractions, you can often use a shortcut called **canceling.** To cancel, divide both the numerator and the denominator by the same number. The numerator and denominator can be in the same fraction or they can be parts of two different fractions. Canceling is similar to reducing a fraction.

EXAMPLE 1 $\frac{5}{6} \times \frac{3}{4} =$

STEP 1 Ask, "Can a numerator and a denominator be divided by the same number?" Yes. 6 and 3 can be divided by 3.

STEP 2 Divide. $6 \div 3 = 2$ and $3 \div 3 = 1$
After you cancel, multiply the new fractions.

$$\frac{5}{{}_{2}\cancel{6}} \times \frac{\overset{1}{\cancel{3}}}{4} = \frac{5}{2} \times \frac{1}{4} = \frac{5}{8}$$

ANSWER: $\frac{5}{8}$

EXAMPLE 2 $\frac{4}{9} \times \frac{3}{8} =$

STEP 1 Divide both the 4 and the 8 by 4.

STEP 2 Divide both the 9 and the 3 by 3.

$$\frac{{}^{1}\cancel{4}}{{}_{3}\cancel{9}} \times \frac{{}^{1}\cancel{3}}{\cancel{8}_{2}} = \frac{1}{3} \times \frac{1}{2}$$

STEP 3 Multiply the new fractions.

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

ANSWER: $\frac{1}{6}$

Multiply. Use canceling as your first step.

6. $\frac{5}{6} \times \frac{3}{4} =$ $\quad \frac{2}{5} \times \frac{11}{12} =$ $\quad \frac{7}{8} \times \frac{6}{7} =$

7. $\frac{3}{4} \times \frac{8}{9} =$ $\quad \frac{1}{4} \times \frac{2}{5} =$ $\quad \frac{5}{9} \times \frac{3}{10} =$

8. $\frac{5}{12} \times \frac{7}{15} =$ $\quad \frac{3}{4} \times \frac{4}{15} =$ $\quad \frac{7}{8} \times \frac{5}{7} =$

9. $\frac{3}{8} \times \frac{4}{6} =$ $\quad \frac{1}{2} \times \frac{3}{4} \times \frac{8}{9} =$ $\quad \frac{3}{4} \times \frac{4}{5} \times \frac{10}{12} =$