

**Section 5-2:
Multiplying and
Dividing Fractions**

To find the product of two fractions:

-Multiply straight across

$$\text{Ex. 1: } \frac{1}{2} \cdot \frac{3}{4} = \frac{1 \cdot 3}{2 \cdot 4} = \frac{3}{8}$$

$$\text{Ex. 2: } -\frac{5}{8} \cdot \frac{2}{5} = -\frac{10}{40} = -\frac{1}{4}$$

To find the product of two fractions:
-Multiply straight across

$$\text{Ex. 3: } \frac{2}{1} \cdot \frac{9}{4} = \frac{18}{4} = \frac{9}{2}$$

$$\text{Ex. 4: } 3\left(x + \frac{4}{5}\right) = 3x + \frac{12}{5}$$

What is a reciprocal?

Ex. 5: $\frac{3}{4} \rightarrow \frac{4}{3}$

Ex. 6: $\frac{7}{3} \rightarrow \frac{3}{7}$

Ex. 7: $\frac{1}{8} \rightarrow \frac{8}{1} = 8$

Ex. 8: $5 \rightarrow \frac{1}{5}$

To find the quotient of two fractions:

-Multiply the first fraction by the reciprocal of the second fraction.

$$\text{Ex. 9: } \frac{1}{2} \div \frac{3}{4} = \frac{1}{2} \cdot \frac{4}{3} = \frac{4}{6} = \frac{2}{3}$$

$$\text{Ex. 10: } \frac{5}{8} \div \frac{2}{5} = \frac{5}{8} \cdot \frac{5}{2} = \frac{25}{16}$$

To find the quotient of two fractions:

-Multiply the first fraction by the reciprocal of the second fraction.

$$\text{Ex. 11: } \frac{3}{4} \div 2\frac{7}{8} = \frac{3}{4} \cdot \frac{8}{23} = \frac{24}{92} = \frac{6}{23}$$

$$\text{Ex. 12: } \frac{3}{1} \div \frac{15}{1} = \frac{3}{1} \cdot \frac{1}{15} = \frac{3}{15} = \frac{1}{5}$$

Equations involving fractions:

Ex. 13: $\frac{3}{7}x = \frac{3}{4}$ $x = \frac{3}{4} \cdot \frac{7}{3} = \frac{21}{12}$

$\frac{3}{7}$ $\frac{3}{4}$
 $\div \frac{7}{7}$ $\div \frac{3}{3}$

$x = \frac{7}{4}$

Ex. 14: $4x = \frac{2}{5}$ $x = \frac{2}{5} \cdot \frac{1}{4} = \frac{2}{20}$

$\frac{4x}{4}$ $\frac{2}{5}$ $\frac{4}{4}$

$x = \frac{1}{10}$