

## Dividing Fractions, Mixed Numbers, and Rational Expressions

Two numbers that multiply to 1 are called \_\_\_\_\_.

(also called \_\_\_\_\_)

ex:  $\frac{2}{3}$  and  $\frac{3}{2}$

### Ex 1.

Find the reciprocal.

$$\frac{3}{7}$$

$$8$$

$$-\frac{9}{4}$$

Dividing by a fraction is the same as \_\_\_\_\_ by the \_\_\_\_\_.

### Ex 2.

$$\frac{5}{8} \div \frac{3}{4} =$$

$$-5\frac{1}{4} \div \left(-2\frac{1}{3}\right) =$$

$$\frac{10x^3}{14} \div \frac{15x}{9} =$$

### Square Root of Fraction

$$\sqrt{\frac{9}{16}} = \frac{3}{4} \text{ since } \left(\frac{3}{4}\right)^2 = \frac{3}{4} \cdot \frac{3}{4} = \frac{9}{16}$$

In general, to find the square root of a fraction, we can take the square root of the top, and the

square root of the bottom:  $\sqrt{\frac{9}{16}} = \frac{\sqrt{9}}{\sqrt{16}} = \frac{3}{4}$

**Ex 3.**

Simplify.

$$\sqrt{\frac{49}{100}} =$$

$$\sqrt{\frac{5}{45}} =$$

### Solving Equations

**Ex 4.**

Solve:  $\frac{3}{4}x = 3\frac{2}{3}$

**Ex 5.**

Solve:  $\frac{x}{10} = -2\frac{3}{4}$

**Ex 6.**

How many  $4\frac{1}{2}$ -ounce servings are there in  $30\frac{1}{4}$  ounces of cereal?