1. Identify Reciprocals

Two numbers are **reciprocals** of each other when their product is one.

Example 1 Identify which pairs of numbers are reciprocals.

a) \( \frac{3}{4}, -\frac{4}{3} \)  
   b) \( -\frac{4}{5}, -\frac{5}{4} \)  
   c) \( 3, \frac{1}{3} \)  
   d) \( -5, 5 \)

2. Use the Multiplication Property to Solve Equations.

A) Multiplication property of equality.
   1) Multiplying **both sides** of an equation by the same **non-zero number** produces an equivalent equation.
   2) Any **real number except zero** may be used, including negative numbers, fractions, decimals, etc.

B) Solve equations using the multiplication property.
   1) Multiply both sides by the **reciprocal** of the coefficient of the variable term.
   2) The coefficient becomes 1, which may be omitted since \( 1 \cdot x = x \).
   3) Note that **multiplying by the reciprocal** of \( x \) is the same as dividing by \( x \).

Example 2 Solve the equations and check.

a) \( 3y = 27 \)  
   b) \( \frac{t}{6} = 4 \)  
   c) \( \frac{2}{7}w = 6 \)

   d) \( 16 = -4x \)  
   e) \( -24x = -18 \)  
   f) \( 2b = -\frac{4}{5} \)

3. Solve equations of the form \( -x = a \).

   1) Remember a solution is of the form \( x = a \), where \( a \) is a real number, so \( -x = a \) is **not a solution**.
   2) Isolate the variable by **multiplying** both sides of the equation by \( -1 \). Note: multiplying by -1 is the same as changing the sign of every term.

Example 3 Solve the equations.

a) \( -r = 17 \)  
   b) \( -q = -10 \)  
   c) \( -a = \frac{1}{2} \)