P.3 LINEAR EQUATIONS AND INEQUALITIES

Learning Targets for P.3
1. Solve multiple step linear equations
2. Solve multiple step linear inequalities
3. Solve equations with fractions

Solving Linear Equations

Example 1: Solve each of the following equations..

a) $-3x - 8 = 4$

b) $5 - 2(h + 4) = 3h - 5$

c) $2(3 - 4b) - 5(2b + 3) = b - 17$

d) $\frac{x+3}{4} - \frac{x-1}{6} = 1$

e) $\frac{x-5}{15} + 4 = \frac{2x+1}{25}$

Solving Linear Inequalities

Example 2: Solve each inequality, graph the solution on a number line, and write the answer in interval notation.

a) $-3x - 8 < 4$

b) $\frac{-2x+5}{4} \le 1$

c) $\frac{2y-3}{2} + \frac{3y-1}{5} > y - 1$

d) $\frac{1}{4}(x-4) - x \ge \frac{5}{2}(3-x)$

Example 3: Solve the following inequality and graph the solution on a number line:

$$-2 \le 3x + 4 < 5$$

Extending the Ideas

Example 4: The formula for the perimeter of a rectangle is given by $P = 2L + 2W$. Solve this equation for W.

Example 5: The formula for the area of a trapezoid is given by $A = \frac{1}{2}h(b_1 + b_2)$. Solve this equation for b_1.

Example 6: The formula for finding the Celsius temperature given the Fahrenheit temperature is $C = \frac{5}{9}(F - 32)$. Solve this equation for F.