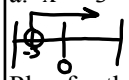
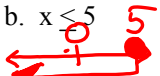
Problem of the Day: Graph the following inequalities.

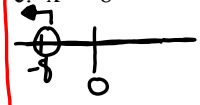
a. $x > -3$



b. $x \leq 5$



c. $x < -8$



Plan for the Day:
Notes on solving inequalities
More practice with solving and graphing inequalities
Objective: We will be able to solve and graph multi-step inequalities.
Today is National TV Dinner Day!!

To solve inequalities,

1. solve it the same as an equation for addition and subtraction as well as multiplication and division with positive numbers

2. for problems that you need to multiply or divide by a negative, you need to flip the inequality sign

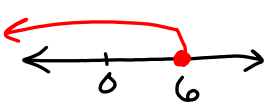
3. graph the solution set

Solve and graph the following inequalities.

Example 1: $x + 7 \leq 13$

$0 + 7 \leq 13$
$7 \leq 13$ ✓

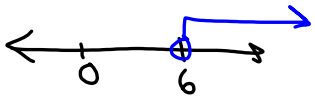
$x \leq 6$



Example 2: $2 < \frac{x}{3}$

$2 < \frac{9}{3}$
$2 < 3$ ✓

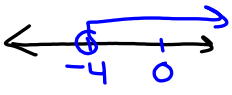
$6 < x$
$x > 6$



Solve and graph the following inequalities.

Example 3: $-4x + 4 < 20$

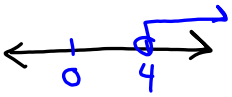
$-4 \quad -4$
$\frac{-4x}{-4} < \frac{16}{-4}$
$x > -4$



Example 4: $5m - 8 > 12$

$-8 > 12$
false

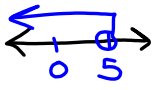
$+8 \quad +8$
$\frac{5m}{5} > \frac{20}{5}$
$m > 4$



Solve and graph the inequalities.

Example 5: $5m - 4 < 2m + 11$

$-2m \quad -2m$
$3m - 4 < 11$
$+4 \quad +4$
$\frac{3m}{3} < \frac{15}{3}$
$m < 5$



Example 6: $-28 - 2x \geq -3(3 + 6x) - 3x$

$-28 - 2x \geq -9 - 18x - 3x$
$-28 - 2x \geq -9 - 21x$
$+21x \quad +21x$
$-28 + 19x \geq -9$
$+28 \quad +28$
$\frac{19x}{19} \geq \frac{19}{19}$
$x \geq 1$

Solve and graph.

1. $3(x - 3) - 5x > -3x - 6$

2. $-6(1 + 7x) + 7(1 + 6x) \leq -2$

3. $-5n + 6 \geq -7(5n - 6) - 6n$

4. $13 + 2v - 8 + 6 > -7 - v$