Agenda

- Homework:
  - Inequalities Graphing Worksheet
  - AM

Materials:

Notebook

Calculator

- Do Now:
  - Take out homework
  - On next left page of notebook:

$f(x) = 2x - 5$

$g(x) = \frac{-7}{3}x + 8$

Solve f(6) & g(6)

Do Now

Homework

- Study Groups
- Review

Inequalities CN

- **Topic:** Systems of Inequalities: Graphs

- **EQ:** How do you solve a system of inequalities graphically?

What is an inequality?

- Is a range of values, rather than ONE number
- An algebraic relation showing that a quantity is greater than or less than another quantity.

How do you read the inequality symbols?

$<$ **Less than**

$>$ **Greater than**

$\leq$ **Less than OR EQUAL TO**

$\geq$ **Greater than OR EQUAL TO**

Real World Example: Speed Limit

$$30 \leq x$$ [redacted]

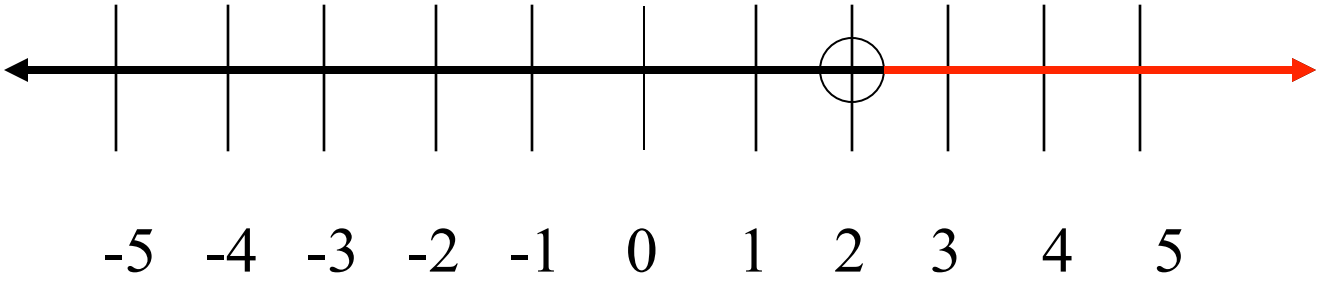
Your Speed

Must be greater than or equal to 30mph AND less than or equal to 55mph.

How do you graph an inequality on a number line?

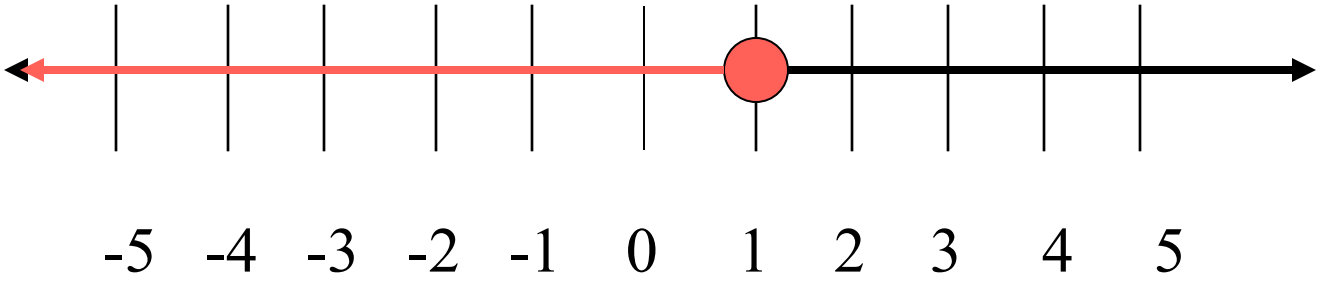
1. Start with a dot on the boundary number
   - Use an OPEN circle if it is strictly less/greater than
   - Use a CLOSED circle if it is equal to
2. Draw an arrow through all numbers that satisfy the inequality
   (HINT: If x is on the LEFT, draw the arrow in the direction of the inequality symbol)

Solutions continued….



All real numbers greater than 2

$x > 2$



All real numbers less than or equal to 1

$x \leq 1$

How do you write an inequality in set notation?

- Example: All values of x such that $x < -3$

$$\{ x : x < -3 \}$$

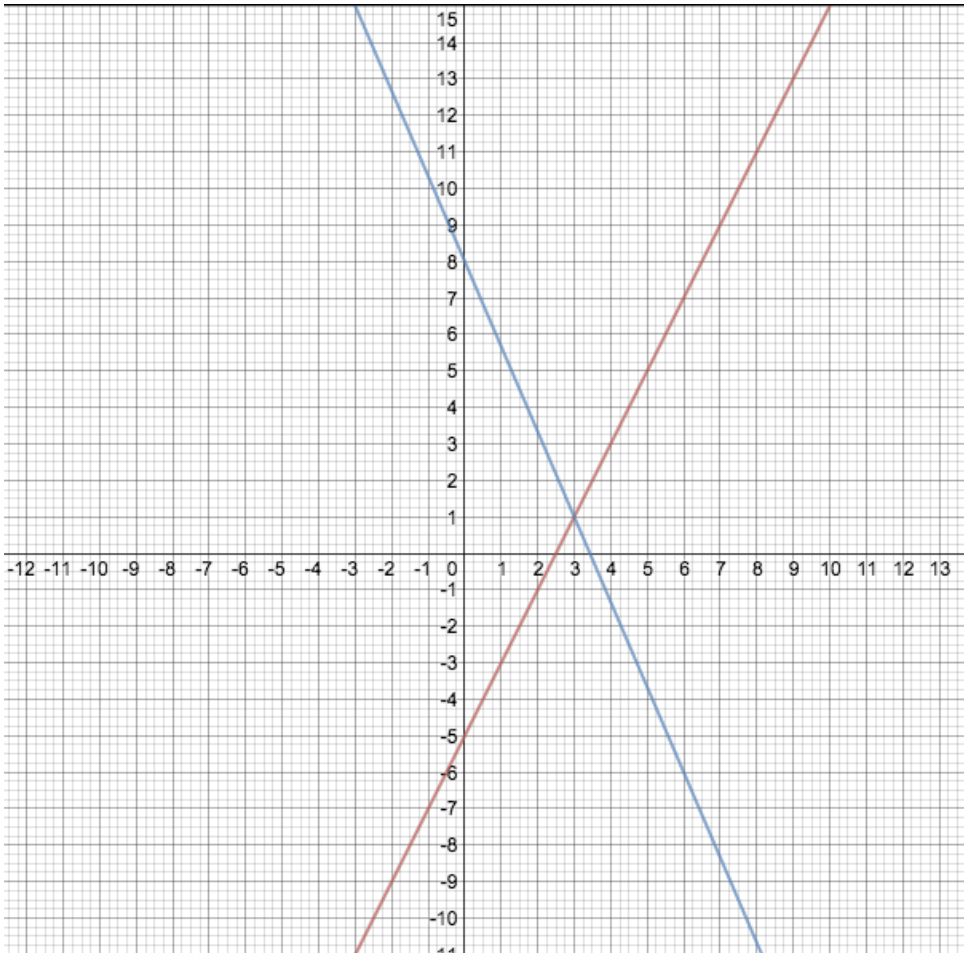
All x such that x is less than -3

What does it mean for one linear equation to be "greater than" or "less" than, another?

$f(x) = 2x - 5$

$g(x) = \frac{-7}{3}x + 8$

Solve f(6) & g(6)

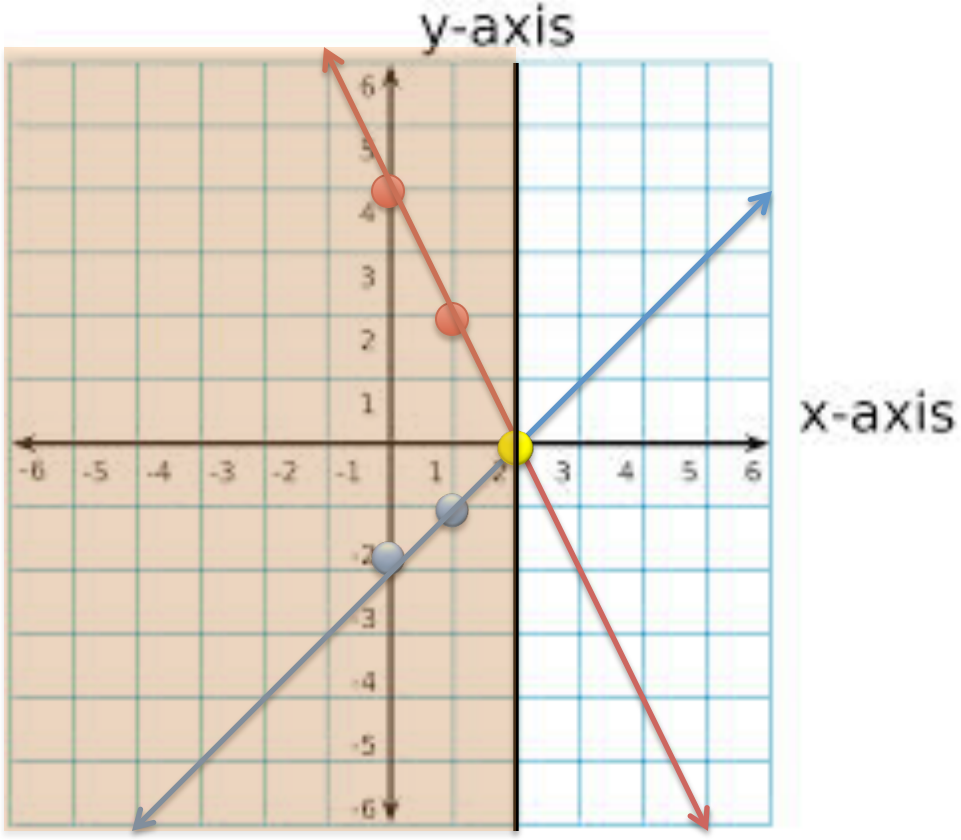


For which values of x is it true that f(x) > g(x)?

$f(x) = -2x + 4$

$g(x) = x - 2$

Where is the red line ABOVE the blue line?



$x < 2$

Classwork

- Practice solving systems of linear inequalities