

Curriculum Outcome

PR1: . Generalize a pattern arising from a problem-solving context using linear equations and verify by substitution.

PR3. Model and solve problems using linear equations of the form:

$$ax = b; = b, a \neq 0; ax + b = c; +b = c, a \neq 0; = b, x \neq 0 \quad ax \quad ax \quad xa$$

$$ax + b = cx + d; a(bx + c) = d(ex + f); a(x + b) = c; ax = b + cx$$

concretely, pictorially and symbolically, where $a, b, c, d, e,$ and f are rational numbers

Student Friendly: Replacing the equal sign with an inequality sign (ie. $<, >$)

Warm-Up



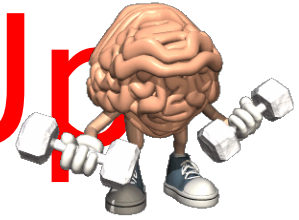
$$1) \frac{1}{3}(15 + 3r) = \frac{2}{5}(15 - 5r)$$

$$r = \frac{1}{3}$$

$$2) 3u + 6 - 5u = 17 + 4u - 6$$

$$u = -\frac{5}{6}$$

Warm-Up



$$1) \frac{1}{3}(15 + 3r) = \frac{2}{5}(15 - 5r)$$

$$\frac{15}{3} + \frac{3r}{3} = \frac{30}{5} - \frac{10r}{5}$$

$$5 + \boxed{r}^{+2r} = 6 - \boxed{2r}^{+2r}$$

$$\cancel{5} + 3r = 6 - \cancel{5}$$

$$\cancel{3r} = \frac{1}{3}$$

$$\boxed{r = \frac{1}{3}}$$

$$2) \quad 3u + 6 - 5u = 17 + 4u - 6$$

$$\cancel{-2u} + 6 = 11 + 4u \quad \text{+2u}$$

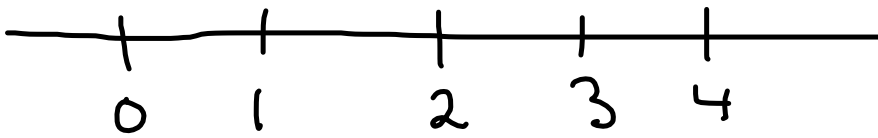
$$6 = 11 + 6u$$

$$\frac{-5}{6} = \frac{6u}{6}$$

$$u = -\frac{5}{6}$$

$$x + \cancel{5}^5 > 7^{-5}$$

$$x > 2$$



Class/Homework



Any Questions????

Last nights

homework

Text book questions
or worksheet questions

Class/Homework



Class work and homework

Mid-Unit Review

page 286

Questions: 3,4,5, 7, 8,

Worksheet questions

1, 5, 13, 17, 19, 21, 23, 25, 27

Warm Up

Quiz Time

Section 6.3

Introduction to Linear Inequalities



What is an inequality?

Tallest man
7 feet 9 inches
or 2.36m tall > Smallest man
29 inches
or 0.74m tall

We use inequalities to model situations that can be described by a range of numbers instead of a single number.



"Pick a number greater than 7."

$$x > 7$$

When one quantity is....



less than

$<$

greater than

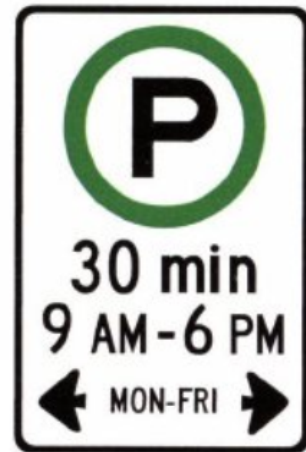
$>$

less than or equal to

\leq

greater than or equal to

\geq



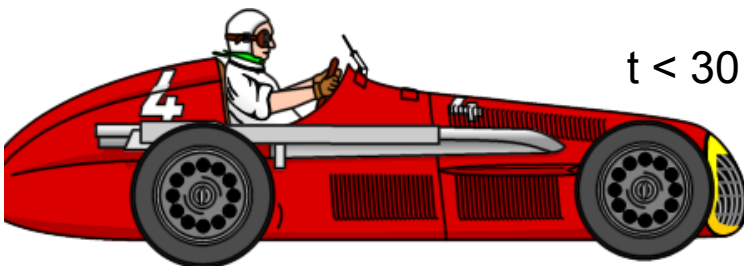
Which of these inequalities describes the time, t minutes, for which a car could be legally parked?

$$t > 30$$

$$t \geq 30$$

$$t < 30$$

$$t \leq 30$$



Define a variable and write an inequality for each of the following situation:



Variable: s , speed

Inequality: $s \leq 55$



Variable: t , temperature

Inequality: $t < 4$



Variable: h , height

Inequality: $h \geq 102$



Variable: a , age

Inequality: $a \geq 14$



CAPTAIN ANSWER



Determining whether a number is a solution to an inequality

Is each number a solution of the inequality $b \geq -4$?

-8 -3.5 -4 -4.5 0

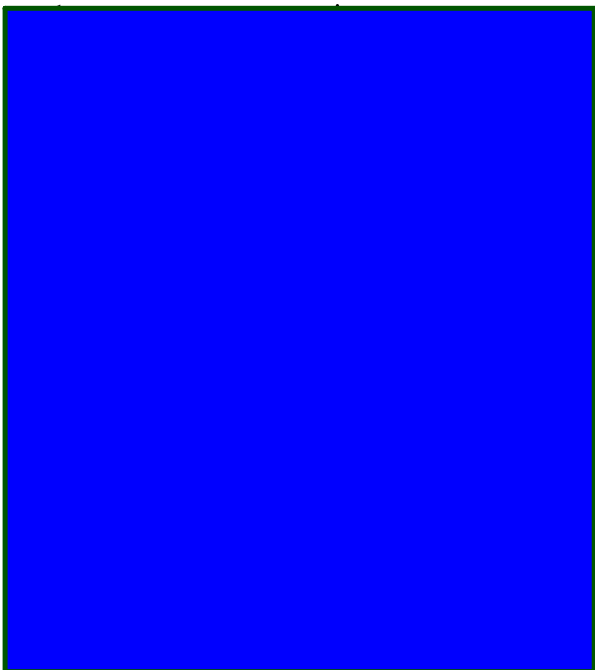
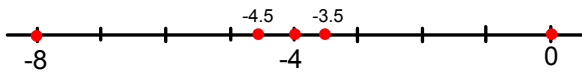
We can do this in TWO different ways:



Method 1: Using a Number Line

Show all numbers on a line.

The solution of $b \geq -4$ is all numbers that are greater than (to the right) or equal to -4.



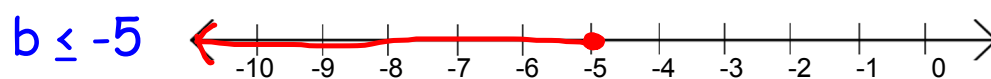
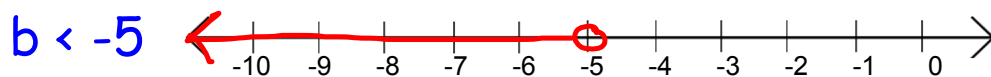
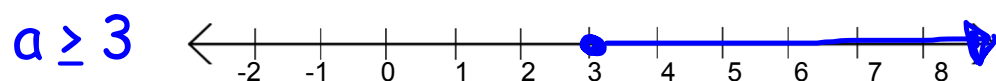
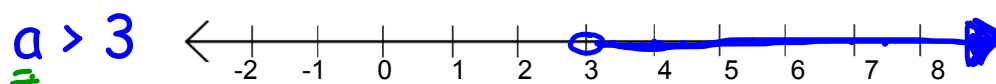
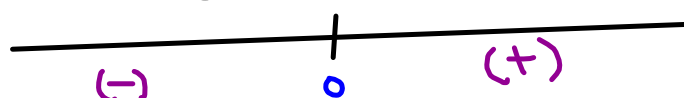
Method 2 Use Substitution.

Substitute each number for b in the inequality $b \geq -4$.

Determine whether the resulting inequality is true or false.

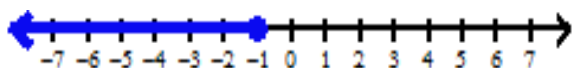
- a) Since $-8 \geq -4$ is false, -8 is not a solution.
- b) Since $-3.5 \geq -4$ is true, -3.5 is a solution.
- c) Since $-4 = -4$, -4 is a solution.
- d) Since $-4.5 \geq -4$ is false, -4.5 is not a solution.
- e) Since $0 \geq -4$ is true, 0 is a solution.

Graphing inequalities



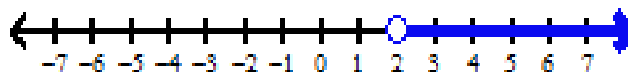
Write the inequality given by the following graph.

1)



$$x \leq -1$$

2)



$$y > 2$$

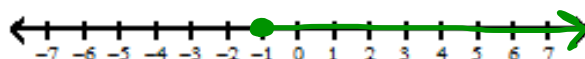


You try

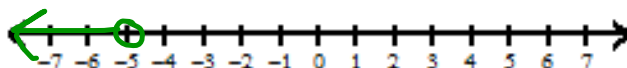
think
think
think



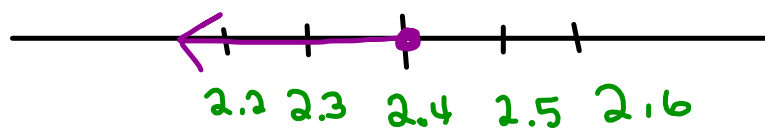
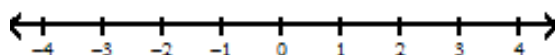
1) $k \geq -1$



2) $x < -5$



3) $a \leq 2.4$

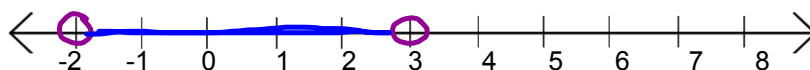


Graphing inequalities

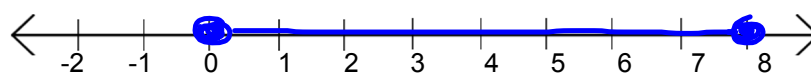
$$-2 < p < 3$$

$$p > -2$$

$$p < 3$$



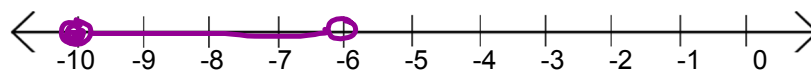
$$0 \leq a \leq 8$$



$$-5 < t \leq -2$$

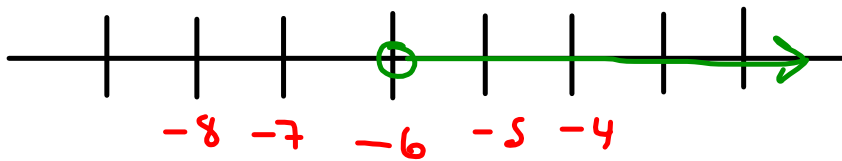


$$-10 \leq g < -6$$



$$-6 < t$$

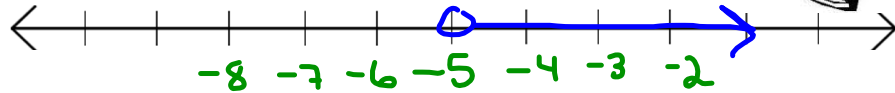
$$t > -6$$



Graph each inequality on a number line.

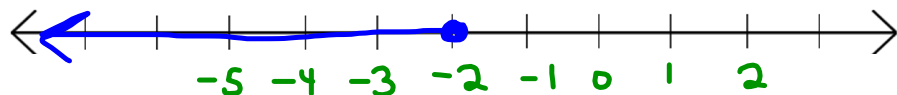


a) $t > -5$



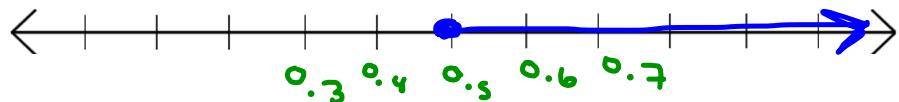
b) $-2 \geq x$

$x \leq -2$

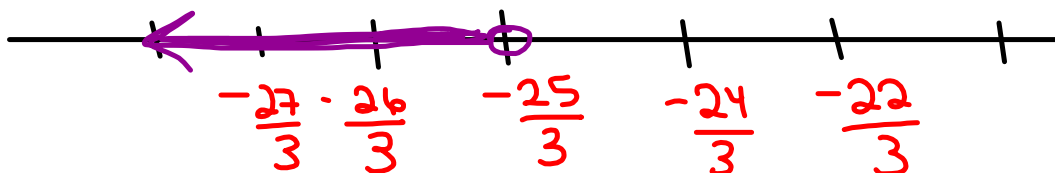


c) $0.5 \leq a$

$a \geq 0.5$

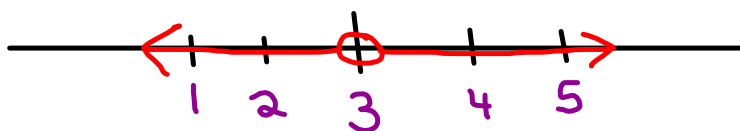


d) $p < \frac{-25}{3}$



$$x \neq 3$$

X does not equal 3



Class/Homework

Page 292-293

Questions: 3, 4,5,6,8,9,12, 13

Worksheet: All questions both sides