Lesson 4

Solve Multiple Step Inequalities

Essential Question: Would an inequa

Solving inequalities is for the most part the same as <u>Solving equations</u>. The only exception is that when you are solving, if you have to <u>multiply</u> or <u>divide</u> by a <u>negative</u>, you also have to <u>flip reverse</u> the inequality symbol.

< is less than

> is greater than < is less than or equal to "at most"

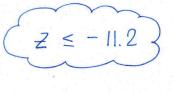
Example 1 Write and Solve an Inequality

Define a variable, write an inequality, and solve the problem. Then check your solution. Sixteen plus three times a number is at most one-half of the number minus twelve.

$$16 + 32 \le \frac{1}{2} = -12$$

$$\frac{16 + 2.52 \leq -12}{-16}$$

$$\frac{252}{2.5} \leq \frac{-28}{2.5}$$



Similar to equations, sometimes you have special solutions to an inequality.

No Solution

All real #'s/Infinitely Many

Solve each inequality, If possible.

a.
$$2(x+3) \le \frac{1}{2}(4x+2)-1$$

$$2x + 6 \le 2x + 1-1$$

$$2x + 6 \le 2x$$

$$-2x$$

$$6 \le 0$$
False No Solution

b.
$$12(t+4)-3t > 9(t+4)$$

$$12t + 48-3t > 9t + 36$$

$$48 > 36$$

$$48 > 36$$

$$All real #'s$$

Whats it Look Like on STAAR?

What is the solution set for
$$-4x + 10 \ge 5x + 55$$
?

F $x \ge 5$

G $x \ge 45$

H $x \le -5$

J $x \le -45$
 $-4x + 10 \ge 5x + 55$
 $-9x + 55$
 -9

$$-4x + 10 \ge 5x + 55$$
 $-5x$
 $-5x$
 $-9x + 10 \ge 55$
 $-10 = -10$
 -10
 -10
 -10
 -10
 -10
 -10
 -10
 -10
 -10

Laura solved the following inequality. She then gave her friend values in the solution set.

Which values could represent what Laura gave her friend? Select ALL that apply.

B. 0

C. -1

D. -3