

Unit 6 Lesson 15: Efficiently Solving Inequalities

1 Lots of Negatives (Warm up)

Student Task Statement

Here is an inequality: $-x \geq -4$.

1. Predict what you think the solutions on the number line will look like.
2. Select **all** the values that are solutions to $-x \geq -4$:
 - a. 3
 - b. -3
 - c. 4
 - d. -4
 - e. 4.001
 - f. -4.001
3. Graph the solutions to the inequality on the number line:



c. Graph the solutions to $-2x < 6$ on the number line:



d. How are the solutions to $2x < 6$ different from the solutions to $-2x < 6$?

3 Which Side are the Solutions?

Student Task Statement

1. Let's investigate $-4x + 5 \geq 25$.

a. Solve $-4x + 5 = 25$.

b. Is $-4x + 5 \geq 25$ true when x is 0? What about when x is 7? What about when x is -7?

c. Graph the solutions to $-4x + 5 \geq 25$ on the number line.



2. Let's investigate $\frac{4}{3}x + 3 < \frac{23}{3}$.

a. Solve $\frac{4}{3}x + 3 = \frac{23}{3}$.

b. Is $\frac{4}{3}x + 3 < \frac{23}{3}$ true when x is 0?

c. Graph the solutions to $\frac{4}{3}x + 3 < \frac{23}{3}$ on the number line.



3. Solve the inequality $3(x + 4) > 17.4$ and graph the solutions on the number line.



4. Solve the inequality $-3\left(x - \frac{4}{3}\right) \leq 6$ and graph the solutions on the number line.

