Unit 6 Lesson 16: Interpreting Inequalities

1 Solve Some Inequalities! (Warm up)

Student Task Statement

For each inequality, find the value or values of x that make it true.

1. $8x + 21 \leq 56$

2. $56 < 7(7 - x)$

2 Club Activities Matching

Student Task Statement

Choose the inequality that best matches each given situation. Explain your reasoning.

1. The Garden Club is planting fruit trees in their school's garden. There is one large tree that needs 5 pounds of fertilizer. The rest are newly planted trees that need $\frac{1}{2}$ pound fertilizer each.
   a. $25x + 5 \leq \frac{1}{2}$
   b. $\frac{1}{2}x + 5 \leq 25$
   c. $\frac{1}{2}x + 25 \leq 5$
   d. $5x + \frac{1}{2} \leq 25$

2. The Chemistry Club is experimenting with different mixtures of water with a certain chemical (sodium polyacrylate) to make fake snow.
   To make each mixture, the students start with some amount of water, and then add $\frac{1}{7}$ of that amount of the chemical, and then 9 more grams of the chemical. The chemical is expensive, so there can't be more than a certain number of grams of the chemical in any one mixture.
   a. $\frac{1}{7}x + 9 \leq 26.25$
   b. $9x + \frac{1}{7} \leq 26.25$
   c. $26.25x + 9 \leq \frac{1}{7}$
   d. $\frac{1}{7}x + 26.25 \leq 9$

3. The Hiking Club is on a hike down a cliff. They begin at an elevation of 12 feet and descend at the rate of 3 feet per minute.
   a. $37x - 3 \geq 12$
   b. $3x - 37 \geq 12$
   c. $12 - 3x \geq -37$
   d. $12x - 37 \geq -3$

4. The Science Club is researching boiling points. They learn that at high altitudes, water boils at lower temperatures. At sea level, water boils at $212^{\circ}\mathrm{F}$. With each increase of 500 feet in elevation, the boiling point of water is lowered by about $1^{\circ}\mathrm{F}$.
   a. $212 - \frac{1}{500}e < 195$
   b. $\frac{1}{500}e - 195 < 212$
   c. $195 - 212e < \frac{1}{500}$
   d. $212 - 195e < \frac{1}{500}$

3 Club Activities Display

Student Task Statement

Your teacher will assign your group *one* of the situations from the last task. Create a visual display about your situation. In your display:

- Explain what the variable and each part of the inequality represent
- Write a question that can be answered by the solution to the inequality
- Show how you solved the inequality
- Explain what the solution means in terms of the situation