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Unit 6, Lesson 17: Modeling with Inequalities

1. 28 students travel on a field trip. They bring a van that can seat 12 students. Elena and Kiran's teacher asks parents to drive cars that seat 3 children each to transport the rest of the students.

   Elena wonders if she should use the inequality $12 + 3n > 28$ or $12 + 3n \geq 28$ to figure out how many cars are needed. Kiran doesn't think it matters in this case. Do you agree with Kiran? Explain your reasoning.

2.   a. In the cafeteria, there is one large 10-seat table and many smaller 4-seat tables. There are enough tables to fit 200 students. Write an inequality whose solution is the possible number of 4-seat tables in the cafeteria.

     b. 5 barrels catch rainwater in the schoolyard. Four barrels are the same size, and the fifth barrel holds 10 liters of water. Combined, the 5 barrels can hold at least 200 liters of water. Write an inequality whose solution is the possible size of each of the 4 barrels.

     c. How are these two problems similar? How are they different?

3. Solve each equation.

   a. $5(n - 4) = \text{-}60$

   b. $\text{-}3t + \text{-}8 = 25$

   c. $7p - 8 = \text{-}22$

   d. $\frac{2}{5}(j + 40) = \text{-}4$

   e. $4(w + 1) = \text{-}6$

   (from Unit 6, Lesson 9)

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4. Select **all** the inequalities that have the same graph as $x < 4$.

    A. $x < 2$
    B. $x + 6 < 10$
    C. $5x < 20$
    D. $x - 2 > 2$
    E. $x < 8$

(from Unit 6, Lesson 13)

5. A 200 pound person weighs 33 pounds on the moon.

    a. How much did the person's weight decrease?

    b. By what percentage did the person's weight decrease?

(from Unit 4, Lesson 12)