

A.A.5: Modeling Inequalities: Write algebraic equations or inequalities that represent a situation

- 1 Roger is having a picnic for 78 guests. He plans to serve each guest at least one hot dog. If each package, p , contains eight hot dogs, which inequality could be used to determine how many packages of hot dogs Roger will need to buy?
 - 1) $p \geq 78$
 - 2) $8p \geq 78$
 - 3) $8 + p \geq 78$
 - 4) $78 - p \geq 8$
- 2 Jeremy is hosting a Halloween party for 80 children. He will give each child *at least* one candy bar. If each bag of candy contains 18 candy bars, which inequality can be used to determine how many bags, c , Jeremy will need to buy?
 - 1) $18c \geq 80$
 - 2) $18c \leq 80$
 - 3) $\frac{c}{18} \geq 80$
 - 4) $\frac{c}{18} \leq 80$
- 3 Carol plans to sell twice as many magazine subscriptions as Jennifer. If Carol and Jennifer need to sell at least 90 subscriptions in all, which inequality could be used to determine how many subscriptions, x , Jennifer needs to sell?
 - 1) $x \geq 45$
 - 2) $2x \geq 90$
 - 3) $2x - x \geq 90$
 - 4) $2x + x \geq 90$
- 4 The ninth grade class at a local high school needs to purchase a park permit for \$250.00 for their upcoming class picnic. Each ninth grader attending the picnic pays \$0.75. Each guest pays \$1.25. If 200 ninth graders attend the picnic, which inequality can be used to determine the number of guests, x , needed to cover the cost of the permit?
 - 1) $0.75x - (1.25)(200) \geq 250.00$
 - 2) $0.75x + (1.25)(200) \geq 250.00$
 - 3) $(0.75)(200) - 1.25x \geq 250.00$
 - 4) $(0.75)(200) + 1.25x \geq 250.00$
- 5 An electronics store sells DVD players and cordless telephones. The store makes a \$75 profit on the sale of each DVD player (d) and a \$30 profit on the sale of each cordless telephone (c). The store wants to make a profit of at least \$255.00 from its sales of DVD players and cordless phones. Which inequality describes this situation?
 - 1) $75d + 30c < 255$
 - 2) $75d + 30c \leq 255$
 - 3) $75d + 30c > 255$
 - 4) $75d + 30c \geq 255$
- 6 Students in a ninth grade class measured their heights, h , in centimeters. The height of the shortest student was 155 cm, and the height of the tallest student was 190 cm. Which inequality represents the range of heights?
 - 1) $155 < h < 190$
 - 2) $155 \leq h \leq 190$
 - 3) $h \geq 155$ or $h \leq 190$
 - 4) $h > 155$ or $h < 190$
- 7 The length of a rectangle is 15 and its width is w . The perimeter of the rectangle is, *at most*, 50. Which inequality can be used to find the longest possible width?
 - 1) $30 + 2w < 50$
 - 2) $30 + 2w \leq 50$
 - 3) $30 + 2w > 50$
 - 4) $30 + 2w \geq 50$
- 8 The length of a rectangle is three feet less than twice its width. If x represents the width of the rectangle, in feet, which inequality represents the area of the rectangle that is *at most* 30 square feet?
 - 1) $x(2x - 3) \leq 30$
 - 2) $x(2x - 3) \geq 30$
 - 3) $x(3 - 2x) \leq 30$
 - 4) $x(3 - 2x) \geq 30$

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Answer Section

1	ANS: 2	REF: 011005ia
2	ANS: 1	REF: 011403ia
3	ANS: 4	REF: 061321ia
4	ANS: 4	REF: 081107ia
5	ANS: 4	REF: fall0715ia
6	ANS: 2	REF: 060821ia
7	ANS: 2	REF: 081212ia
8	ANS: 1	REF: 011513ia