A.CED.A.1: Modeling Linear Inequalities 1b

1   The cost of a pack of chewing gum in a vending machine is $0.75. The cost of a bottle of juice in the same machine is $1.25. Julia has $22.00 to spend on chewing gum and bottles of juice for her team and she must buy seven packs of chewing gum. If b represents the number of bottles of juice, which inequality represents the maximum number of bottles she can buy?

2   Connor wants to attend the town carnival. The price of admission to the carnival is $4.50, and each ride costs an additional 79 cents. If he can spend at most $16.00 at the carnival, which inequality can be used to solve for r, the number of rides Connor can go on, and what is the maximum number of rides he can go on?

3   Natasha is planning a school celebration and wants to have live music and food for everyone who attends. She has found a band that will charge her $750 and a caterer who will provide snacks and drinks for $2.25 per person. If her goal is to keep the average cost per person between $2.75 and $3.25, how many people, p, must attend?

4   The acidity in a swimming pool is considered normal if the average of three pH readings, p, is defined such that $7.0 < p < 7.8$. If the first two readings are 7.2 and 7.6, which value for the third reading will result in an overall rating of normal?
1)   6.2
2)   7.3
3)   8.6
4)   8.8

A.CED.A.1: Modeling Linear Inequalities 1b
Answer Section

1 ANS:
$0.75(7) + 1.25b \le 22$

REF: 081505ai

2 ANS:
$4.50 + 0.79r \le 16.00$; 14 rides

REF: 011513ai

3 ANS:
$750 < p < 1500$

$$\frac{750 + 2.25p}{p} > 2.75 \qquad \frac{750 + 2.25p}{p} < 3.25$$

$$750 + 2.25p > 2.75p \qquad 750 + 2.25p < 3.25p$$

$$750 > .50p \qquad\qquad 750 < p$$

$$1500 > p$$

REF: 061524ai

4 ANS: 2

$$7 < \frac{7.2 + 7.6 + p_L}{3} \quad \text{and} \quad \frac{7.2 + 7.6 + p_H}{3} < 7.8$$

$$6.2 < p_L \qquad\qquad p_H < 8.6$$

REF: 061607ai