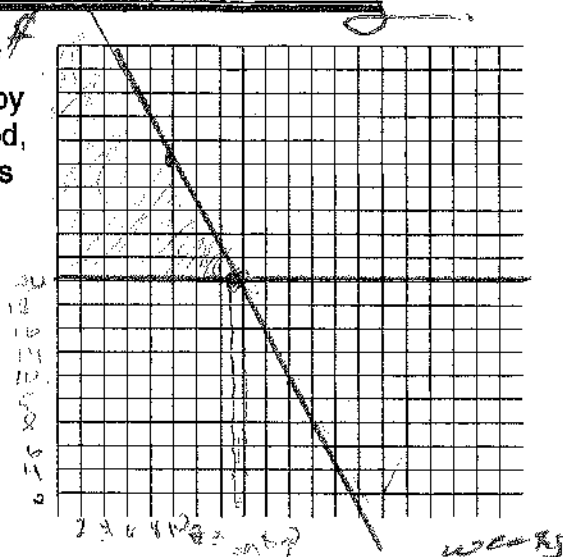# Systems of Inequalities: Word Problems   *Key*

1.   Katie has $50 in a savings account at the beginning of the summer. She wants to have at least $20 in the account by the end of the summer. She withdraws $2 each week for food, clothes, and movie tickets. Write an inequality that expresses Katie's situation and display it on the graph below. For how many weeks can Katie withdraw money?

$$50 - 2x \geq 20$$

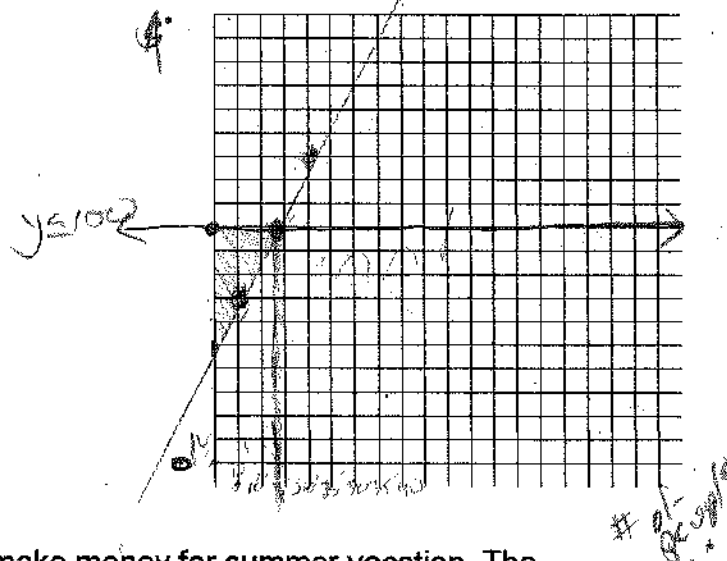$$50 - 2x \leq y$$

$$y \geq 20$$

$$x = 15$$

2.   Skate Land charges a $50 flat fee for a birthday party rental and $4 for each person. Joann has no more than $100 to budget for her party. Write an inequality that models her situation and display it on the graph below. How many people can attend Joann's party?

$$y \geq 50 + 4x$$

$$y \leq 100$$

$$x = 12.5$$

3.   Sarah is selling bracelets and earrings to make money for summer vacation. The bracelets cost $2 and the earrings cost $3. She needs to make at least $60. Sarah knows she will sell more than 10 bracelets. Write inequalities to represent the income from jewelry sold and number of bracelets sold.
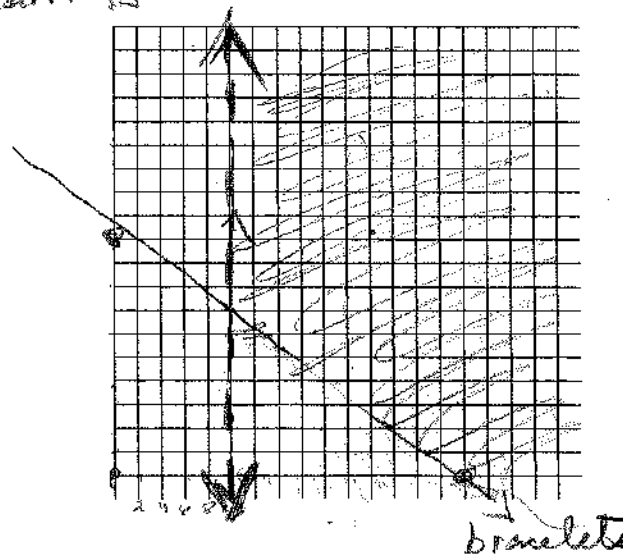
$$2x + 3y \geq 60$$
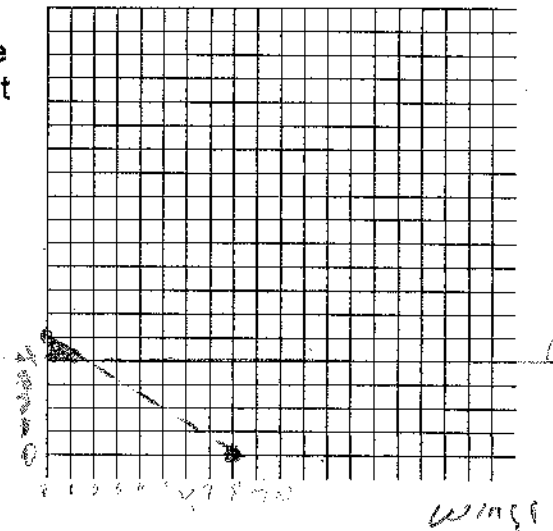
$$x = 10 \qquad (0, 20)$$

$$(30, 0)$$

earrings

bracelets

4. Jason is buying wings and hot dogs for a party. One package of wings costs $8. Hot dogs cost $5 per pound. He must spend less than $40. Jason knows he will be buying at least 4 pound of hot dogs. Write a system of inequalities to model the situation. Graph both inequalities and shade the intersection.

$$8x + 5y < 40$$

$$y \geq 4$$

5. The boys and girls soccer clubs are trying to raise money for new uniforms. The boys' soccer club is selling cars for $2 per piece and the girls' soccer club is selling candles for $4. They must raise more than $800. The girls expect to sell at least 100 candles. Write a system of inequalities to model the situation. Graph both inequalities and shade the intersection.

$$2x + 4y > 800$$

$$y \geq 100$$