Name: _____

7.2.D3 – SYSTEMS OF LINEAR INEQUALITIES

Past due on: _____ Period: _____

Write a system of inequalities to represent each problem situation. Graph the system of inequalities. *Refer to the 7.2 examples "Writing a System of Linear Inequalities" and "Graphing a System of Linear Inequalities" in the Chapter 7 Summary.*

1. The owner of Jeff's Fish Market orders cod and salmon. He wants to buy at least 50 pounds of fish but cannot spend more than $300. Cod is $4 per pound and salmon is $7 per pound.

   Let x = pounds of cod & y = pounds of salmon.

   a. Inequality 1: _____

   b. Inequality 2: _____

   c. Which of the following are solutions?

   $(40, 15)$ $(50, 18)$ $(30, 20)$ $(55, 8)$ $(20, 35)$
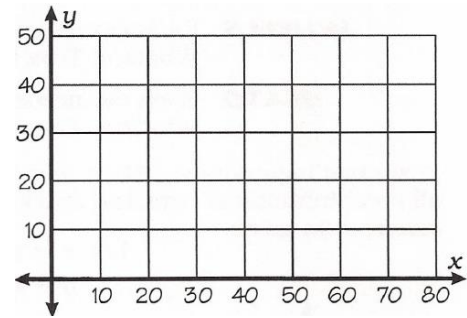
2. Ali is designing a rectangular flower garden with a fence around it. She can use no more than 80 feet of fencing. She wants the width to be at least 5 feet and the length to be at least 20 feet.

   Let x = the width & y = the length.

   a. Inequality 1: _____

   b. Inequality 2: _____

   c. Inequality 3: _____

   d. Which of the following are solutions?
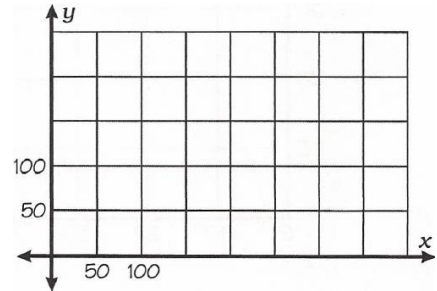
   $(10, 23)$ $(7, 30)$ $(18, 25)$ $(8, 35)$ $(20, 20)$
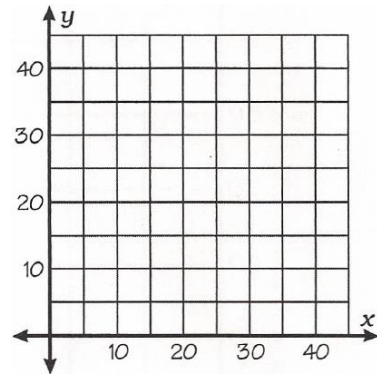
3. Tickets for the Spring Fling cost $3 per person or $5 per couple. To cover expenses, at least $750 worth of tickets must be sold. However, no more than 400 people can fit in the gym.

   Let x = the number of $3 tickets sold & y = the number of $5 tickets sold.

   a. Inequality 1: _____

   b. Inequality 2: _____

   c. Which of the following are solutions?

   $(50, 110)$ $(150, 70)$ $(280, 45)$ $(300, 60)$ $(0, 200)$

Define variables and write a system of inequalities to represent each situation. *Refer to the 7.2 example "Writing a System of Linear Inequalities" in the Chapter 7 Summary.*

4. Oliver is drawing caricatures at the state fair. He is available for 8 hours (480 minutes). He can complete a small drawing in 15 minutes and charges $10 for the drawing. He can complete a larger drawing in 45 minutes and charges $25 for the drawing. Oliver hopes to make at least $200 at the fair.

   Let x = _____ *& y =* _____

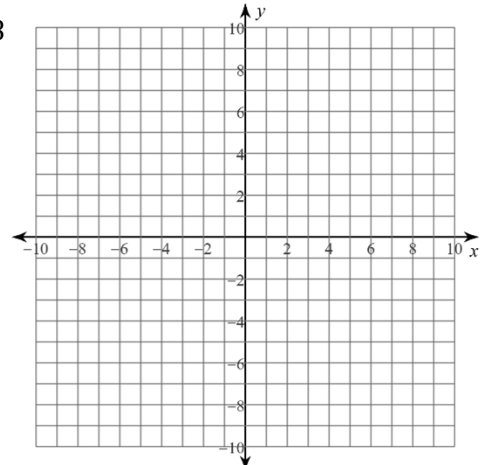   *Inequality 1:* _____ *& Inequality 2:* _____

Graph each system of linear inequalities and identify the intersection point. *Refer to the 7.2 example "Graphing a System of Linear Inequalities" in the Chapter 7 Summary.*
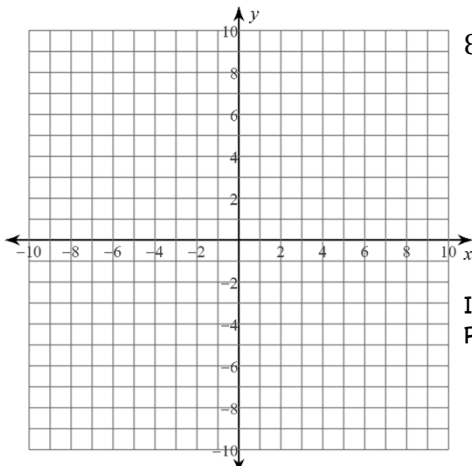
5. $4x - 7y \leq 14$
   $x < 7$
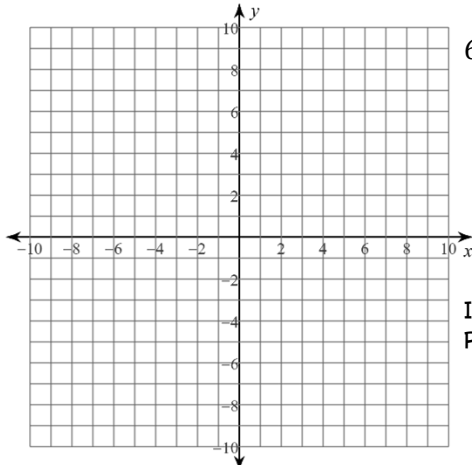
INTERSECTION POINT:

6. $3x + 4y > 28$
   $2x - y < 4$

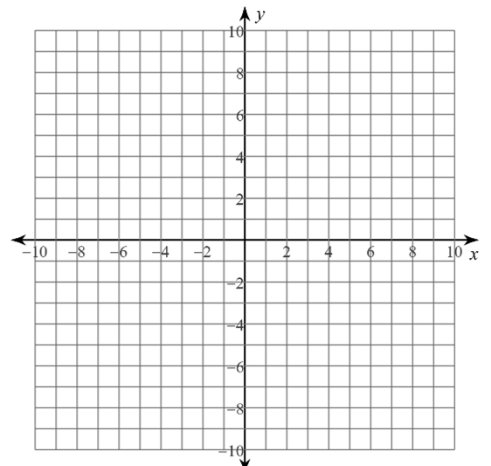INTERSECTION POINT:

7. $y > -6$
   $4x - 3y > 6$

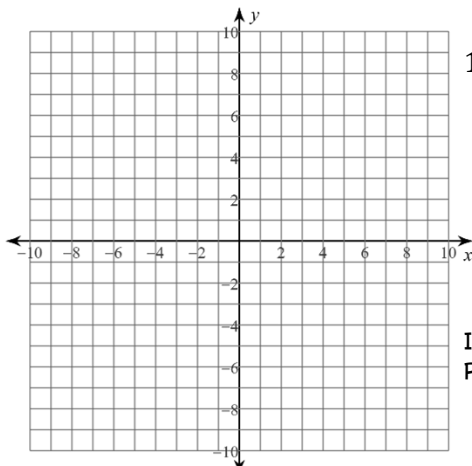INTERSECTION POINT:

8. $x + 2y \geq 2$
   $3x + y < -4$

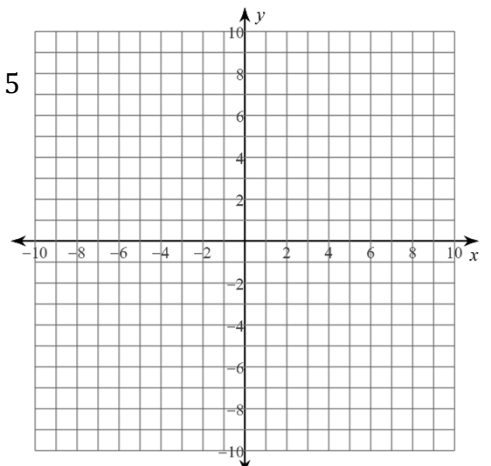INTERSECTION POINT:

9. $y < -2x - 3$
   $y \leq \frac{1}{2}x + 7$

INTERSECTION POINT:

10. $y > -x - 1$
    $y < -\frac{1}{5}x - 5$

INTERSECTION POINT:

Determine the *x*-intercept and the *y*-intercept of each equation. Then convert each equation from standard form to slope-intercept form and identify the slope. *Refer to examples 3.2 & 3.3 in the Chapter 3 Summary.*

	SLOPE-INTERCEPT FORM	X-INTERCEPT	y-INTERCEPT	SLOPE
11. $5x - 2y = 10$				

Chapter 7: Systems of Inequalities