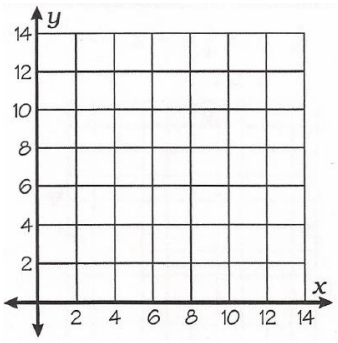
Name: _____

7.2.D2 – SYSTEMS OF LINEAR INEQUALITIES

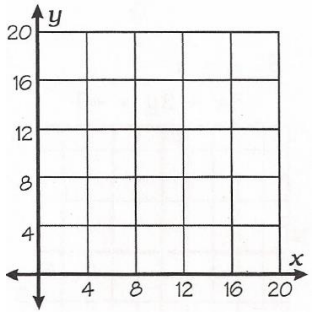
Past due on: _____ Period: _____

Write a linear inequality in two variables to represent each problem situation. Graph the linear inequality. *Refer to the 7.1 examples "Writing a Linear Inequality in Two Variables" and "Graphing a Linear Inequality in Two Variables" in the Chapter 7 Summary.*

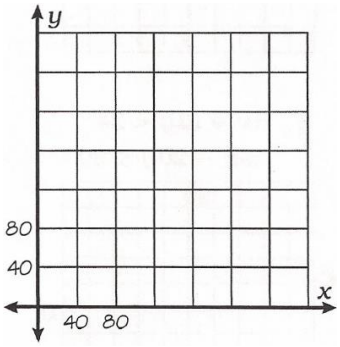
1. Zack is buying peanuts and cashews for a party. He can spend no more than $24. Peanuts cost $2 per pound and cashews cost $3 per pound. Let x = peanuts (in pounds) & y = cashews (in pounds).
   a. Write a linear inequality: _____
   b. Graph the linear inequality:
   c. If x = 6 pounds, what are all possible values of y?



2. Kara is filling her bathtub. The cold water flows at a rate of 4 gallons per minute. The hot water flows at a rate of 3 gallons per minute. Kara wants no more than 60 gallons of water in the tub. Let x = time that cold water is running & y = time the hot water is running.
   a. Write a linear inequality: _____
   b. Graph the linear inequality:
   c. If x = 3 minutes, what are all possible values of y?



3. Student Council is selling tickets to the Valentine Dance. Tickets cost $5 per person or $8 per couple. To cover expenses, at least $1200 worth of tickets must be sold. Let x = number of $5 tickets sold & y = number of $8 tickets sold.
   a. Write a linear inequality: _____
   b. Graph the linear inequality:
   c. If x = 80 tickets, what are all possible values of y?



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. Jamal runs the bouncy house at a festival. The bouncy house can hold a maximum of 1200 pounds at one time. He estimates that adults weigh approximately 200 pounds and children under 16 weigh approximately 100 pounds. For 1 four-minute session of bounce time, Jamal charges adults $3 each and children $2 each. Jamal hopes to charge at least $24 for each session.

   Let x = _____ *& y* = _____

   Inequality 1: _____ *& Inequality 2:* _____

5. Carlos works at a movie theater selling tickets. The theater has 300 seats and charges $7.50 for adults and $5.50 for children. The theater expects to make at least $2000 for each showing.

   Let x = _____ *& y* = _____

   Inequality 1: _____ *& Inequality 2:* _____

6. Sofia is making flower arrangements to sell in her shop. She can complete a small arrangement in 30 minutes that sells for $20. She can complete a larger arrangement in 1 hour that sells for $50. Sofia hopes to make at least $250 during her 8-hour workday.

   Let x = _____ *& y =* _____

   Inequality 1: _____ *& Inequality 2:* _____

7. The maximum capacity for an average passenger elevator is 15 people and 3000 pounds. It is estimated that adults weigh approximately 200 pounds and children under 16 weigh approximately 100 pounds.

   Let x = _____ *& y =* _____

   Inequality 1: _____ *& Inequality 2:* _____

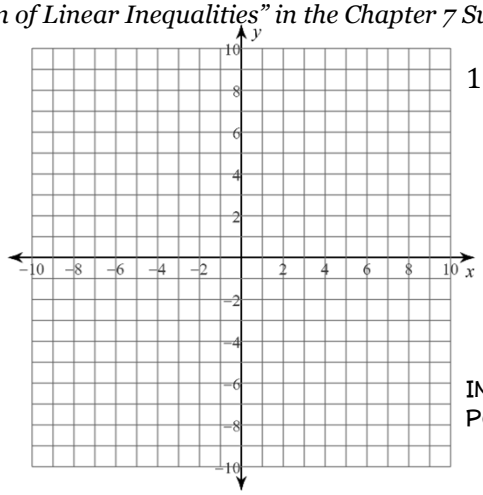
8. Pablo's pickup truck can carry a maximum of 1000 pounds. He is loading his truck with 20-pound bags of cement and 80-pound bags of cement. He hopes to load at least 10 bags of cement into his truck.

   Let x = _____ *& y =* _____

   Inequality 1: _____ *& Inequality 2:* _____

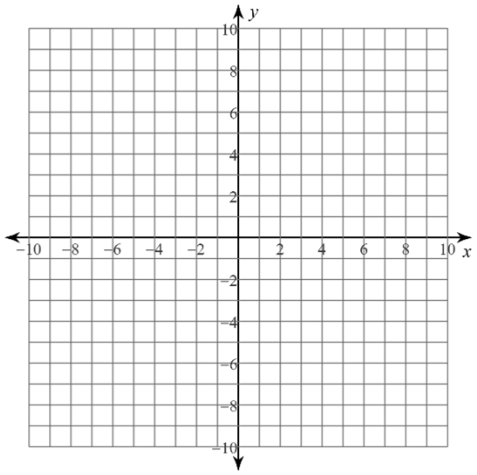
Graph each system of linear inequalities and identify the intersection point. *Refer to the 7.2 example "Graphing a System of Linear Inequalities" in the Chapter 7 Summary.*

9. $y - 3x < 5$
   $y + x > 1$



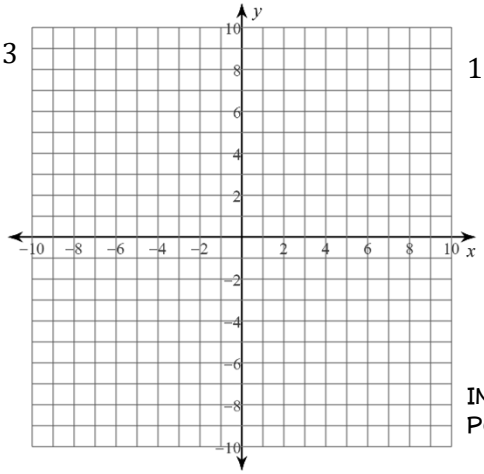
INTERSECTION POINT:

10. $y > 2x + 3$
    $y < 2x - 5$



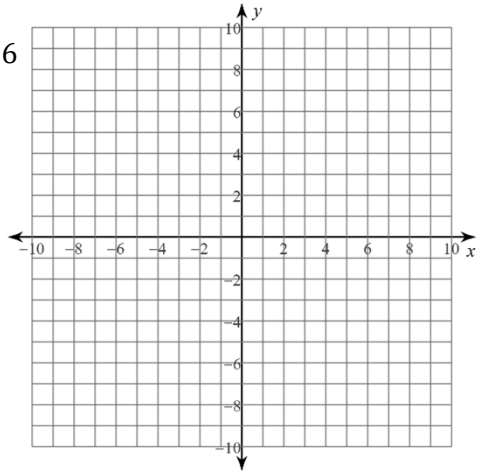
INTERSECTION POINT:

11. $y \leq -\frac{2}{3}x + 3$
    $y \geq 3x - 4$



INTERSECTION POINT:

12. $y < -\frac{1}{2}x + 6$
    $y < 2x + 1$



INTERSECTION POINT: