Algebra 1
Unit 2B Systems of Equations & Inequalities Name: Key Block: ___

Solve the System using substitution.

1.

$$4x + 3y = -8$$
$$-2x + y = -6$$

(1,-4)

2.

$$4x - 2y = 8$$
$$y = -2$$

(1,-2)

Solve the system using elimination.

3.

$$5x - 4y = 2$$
$$-5x + 3y = -9$$

(6,7)

4.

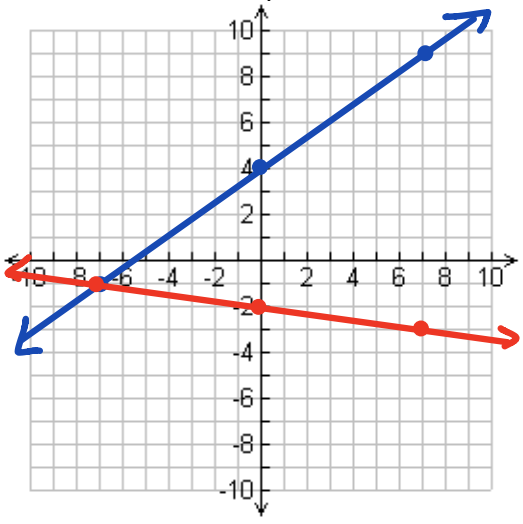
$$-15x + 9y = 27$$
$$-5x - y = 17$$

(-3,-2)

Solve the system by graphing.

5.

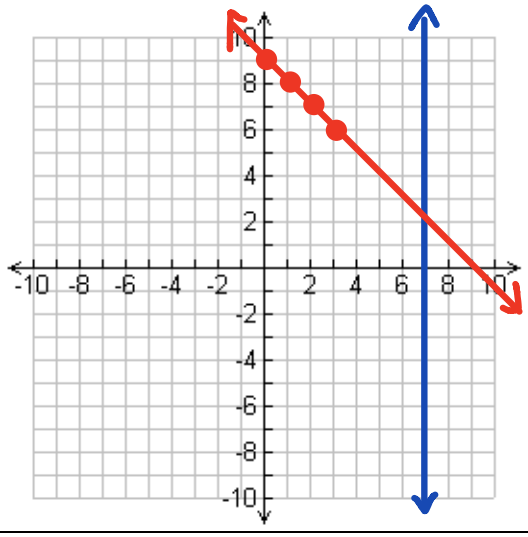
$$y = \frac{5}{7}x + 4$$
$$y = -\frac{1}{7}x - 2$$



(-7,-1)

6.

$$x = 7$$
$$y = -x + 9$$



(7,2)

Solve the system using any method.

7.

$$14x - 2y = 46$$
$$y = 7x - 23$$

infinitely many solutions

8.

$$5x + y = 8$$
$$-3x + 2y = -10$$

(2,-2)

9.

$$-7x - 8y = -23$$
$$4x + 4y = 12$$

(1,2)

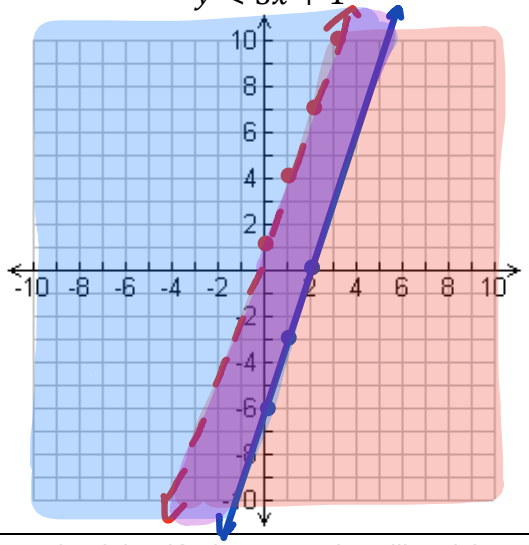
10.

$$-3x - 10y = -4$$
$$x - 5y = 18$$

(8,-2)

11. Graph.

$$y \geq 3x - 6$$
$$y < 3x + 1$$

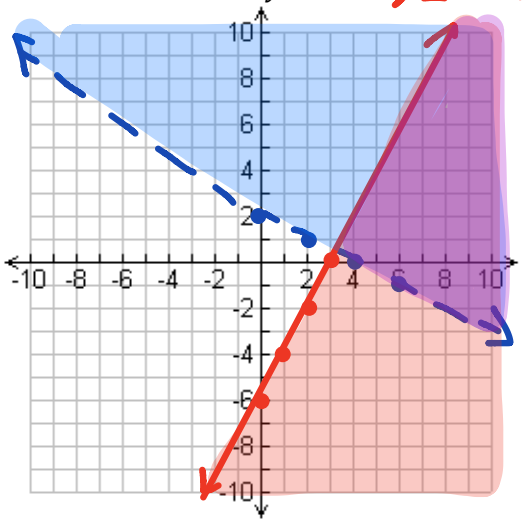


12. Graph.

$$x + 2y > 4$$
$$2x - y \geq 6$$

$y > -\frac{1}{2}x + 2$

$y \leq 2x - 6$



13. The school that Kayla goes to is selling tickets to the annual talent show. On the first day of ticket sales the school sold 6 senior citizen tickets and 7 student tickets for a total of $116. The school took in $26 on the second day by selling 4 senior citizen tickets and 1 student ticket. What is the price each of one senior citizen ticket and one student ticket

$6x + 7y = 116$

$4x + y = 26$

(3,14)

14. Natalie and Anjali each improved their yards by planting hostas and shrubs. They bought their supplies from the same store. Natalie spent $86 on 2 hostas and 7 shrubs. Anjali spent $104 on 8 hostas and 4 shrubs. Find the cost of one hosta and the cost of one shrub.

$2x + 7y = 86$

$8x + 4y = 104$

(8,10)

15. The senior classes at High School A and High School B planned separate trips to New York City. The senior class at High School A rented and filled 12 vans and 11 buses with 737 students. High School B rented and filled 6 vans and 5 buses with 341 students. Each van and each bus carried the same number of students. Find the number of students in each van and in each bus.

$12x + 11y = 737$

$6x + 5y = 341$

(11,55)

16. Jasmine and Brenda are selling cheesecakes for a school fundraiser. Customers can buy pecan cheesecakes and apple cheesecakes. Jasmine sold 2 pecan cheesecakes and 8 apple cheesecakes for a total of $146. Brenda sold 4 pecan cheesecakes and 7 apple cheesecakes for a total of $139. Find the cost each of one pecan cheesecake and one apple cheesecake.

$2x + 8y = 146$

$4x + 7y = 139$

(5,17)

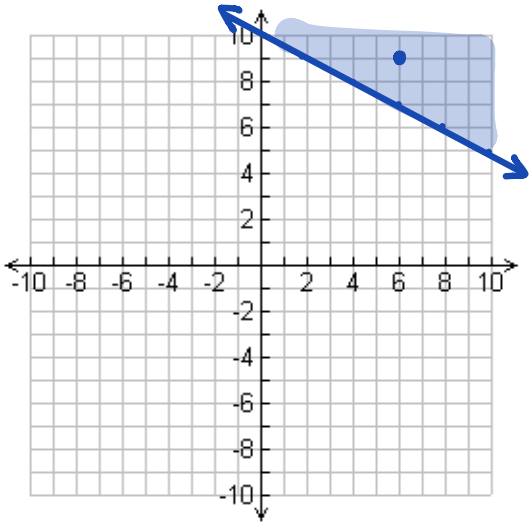
17. Sarah is selling bracelets and earrings. The bracelets cost $2 each and earrings cost $4 each. She needs to make at least $40.

a) Write an inequality to represent the income from jewelry sales.

$2x+4y \geq 40$

b) Graph the inequality.

$y \geq -\frac{1}{2}x+10$



c) Give a solution to your inequality and explain what it means.

(6,9)

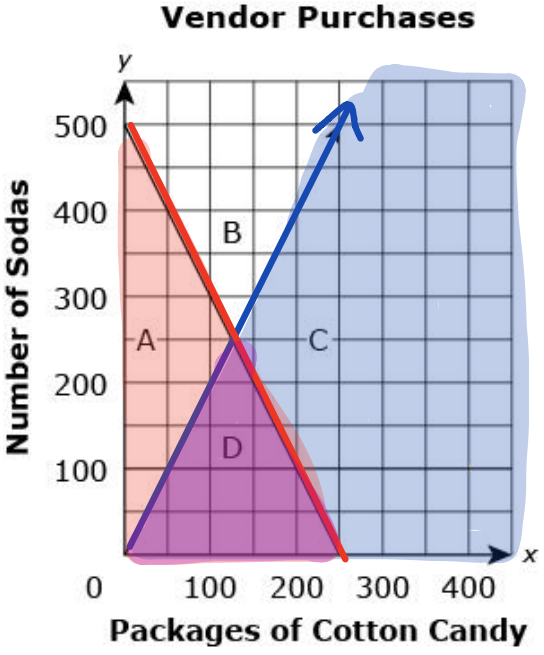
She can sell 6 bracelets and 9 necklaces to make at least $40.

18. A vendor sells cotton candy(x) and sodas at baseball games(y). He knows he must buy twice as much cotton candy as sodas. He can buy sodas for $0.50 per can and cotton candy $1.00 per package. The vendor plans to spend no more than $250 buying both items for the next game.

a) Write two inequalities representing the information above.

$2x \geq y$ $\quad$ $\frac{1}{2}y+x \leq 250$

$y \leq 2x$ $\quad$ $y \leq -2x+500$



b) Using the graph to the right, Which region represents the solution to the system of inequalities? A, B, C, or D?

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