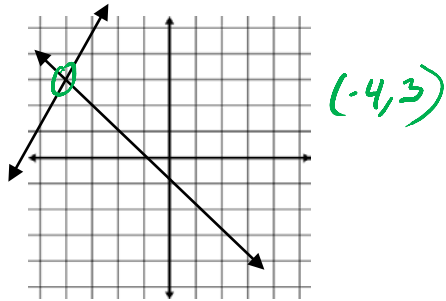


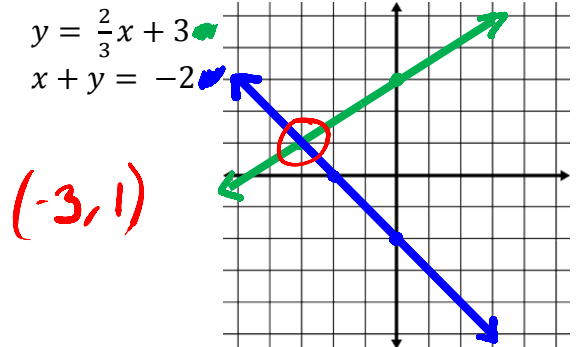
Name: _____ Block: _____

Systems of Equations and Inequalities Review

1. Find the solution of the system.

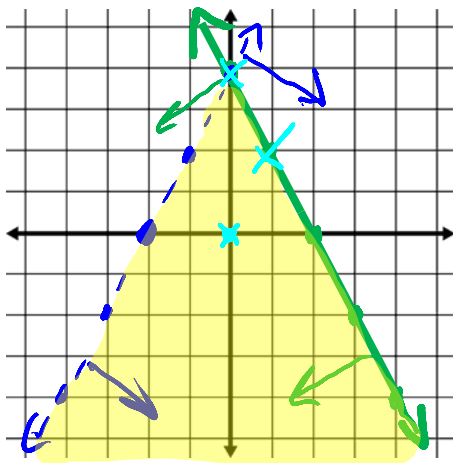


2. Solve the system by graphing.

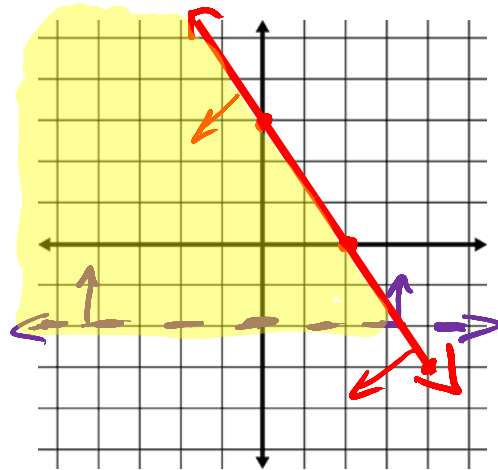


Directions: Graph each system of inequalities. Shade appropriately.

3. $y \leq -2x + 4$
 $-2x + y < 4$



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



5. Consider the system you graphed in question number three.

Are the points $(0, 0)$, $(0, 4)$ and $(1, 2)$ solutions to system? Explain your answer.

yes
 in shaded region
 NO
 on dotted line
 yes
 on solid line

Name: _____ Block: _____

Directions: Solve using *substitution*.

6. $y = -5x - 17$
 $-3x - 3y = 3$

$$\begin{aligned} -3x - 3(-5x - 17) &= 3 \\ -3x + 15x + 51 &= 3 \\ 12x &= -48 \\ x &= -4 \end{aligned}$$

$$\begin{aligned} y &= -5(-4) - 17 \\ y &= 3 \end{aligned}$$

$$\boxed{(-4, 3)}$$

7. $5x + y = 9 \rightarrow y = -5x + 9$
 $10x - 7y = -18$

$$\begin{aligned} 10x - 7(-5x + 9) &= -18 \\ 10x + 35x - 63 &= -18 \\ 45x &= 45 \\ x &= 1 \end{aligned}$$

$$\begin{aligned} y &= -5(1) + 9 \\ y &= 4 \end{aligned}$$

$$\boxed{(1, 4)}$$

8. $x = 9y + \frac{1}{7}$
 $7x - 1 = 63y$

$$\begin{aligned} 7\left(9y + \frac{1}{7}\right) - 1 &= 63y \\ 63y + 1 - 1 &= 63y \\ 0 &= 0 \end{aligned}$$

Infinite
Solutions

Directions: Solve using *elimination*.

9. $7x + 2y = 24$
 $8x + 2y = 30$

$$\begin{aligned} -1x &= -6 \\ x &= 6 \end{aligned}$$

$$\begin{aligned} 8(6) + 2y &= 30 \\ 48 + 2y &= 30 \\ 2y &= -18 \\ y &= -9 \end{aligned}$$

$$\boxed{(6, -9)}$$

10. $-3x + 3y = 4$
 $(-x + y = 3) \times 3$

$$\begin{aligned} -3x + 3y &= 4 \\ -3x + 3y &= 12 \end{aligned}$$

$$0 = -8$$

$\boxed{\text{No Solution}}$

11. $12x - 7y = 1 \times 5$
 $-5x + 4y = 5 \times 12$

$$\begin{aligned} 60x - 35y &= 5 \\ + \quad -60x + 48y &= 60 \end{aligned}$$

$$\begin{aligned} 13y &= 65 \\ y &= 5 \end{aligned}$$

$$\begin{aligned} 12x - 7(5) &= 1 \\ 12x &= 36 \\ x &= 3 \end{aligned}$$

$$\boxed{(3, 5)}$$

Name: _____ Block: _____

Write and solve a system of equations for each of the word problems below. Show both the equations and the work!

12. The difference in price in colored pencils and mechanical pencils is \$0.20. If I purchased 18 colored pencils and 22 mechanical pencils for \$27.60, what is the cost of the mechanical pencils?

Let $x = \text{colored}$
 $y = \text{mechanical}$

$$\left. \begin{aligned} x - y &= .20 \\ 18x + 22y &= 27.60 \end{aligned} \right\} \rightarrow x = .20 + y$$

$$18(.20 + y) + 22y = 27.60$$

$$3.6 + 18y + 22y = 27.60$$

$$40y = 24$$

$$y = .6$$

Mechanical pencils cost \$0.60

13. Blake buys paperback books from the used book store for \$5 each. Natalie purchased an annual membership to the same bookstore for \$35 so she can buy paperbacks at a discounted price of \$2.50 each. How many books would Natalie and Blake have to buy this year for their spending at the bookstore to be the same? What would their total cost be?

Let $x = \# \text{ of books}$ Blake: $y = 5x$ Natalie: $y = 2.5x + 35$

$$5x = 2.5x + 35$$

$$x = 14$$

14 books for \$70

14. Mr. Phillips has a total of 26 dimes and quarters in his desk drawer, totaling \$3.65. How many of each type of coin does he have?

Let $d = \text{dimes}$
 $q = \text{quarters}$

$$\left. \begin{aligned} d + q &= 26 \\ .1d + .25q &= 3.65 \end{aligned} \right\} \rightarrow \begin{aligned} d + q &= 26 \\ d + 2.5q &= 36.5 \end{aligned}$$

$$\begin{array}{r} d + q = 26 \\ - (d + 2.5q = 36.5) \\ \hline -1.5q = -10.5 \\ q = 7 \end{array}$$

$$\begin{aligned} d + 7 &= 26 \\ d &= 19 \end{aligned}$$

19 dimes and 7 quarters

15. The Kendall family was preparing to go hiking with the Dudly family. In preparation, the Kendall's bought 8 Cliff Bars and 4 apples for \$12.40. The Dudly family spent \$24.30 on 15 Cliff Bars and 9 apples. How much was each cliff bar and each apple?

Let $x = \text{Cliff bars}$
 $y = \text{apples}$

$$\left. \begin{aligned} 8x + 4y &= 12.40 \\ 15x + 9y &= 24.30 \end{aligned} \right\} \begin{aligned} \times 9 &\rightarrow 72x + 36y = 111.60 \\ \times 4 &\rightarrow 60x + 36y = 97.20 \end{aligned}$$

$$\begin{array}{r} 72x + 36y = 111.60 \\ - (60x + 36y = 97.20) \\ \hline 12x = 14.4 \\ x = 1.20 \end{array}$$

Cliff bars are \$1.20
 Apples are \$0.70

$$\begin{aligned} 8(1.20) + 4y &= 12.40 \\ 4y &= 2.80 \\ y &= 0.70 \end{aligned}$$

Name: _____ Block: _____

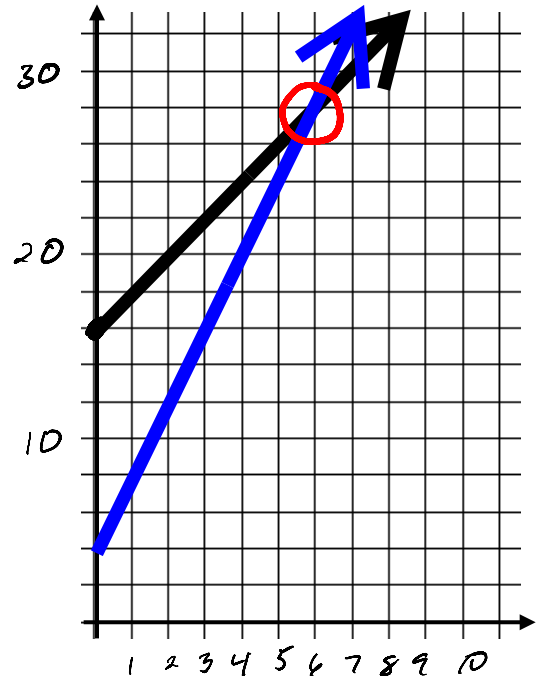
16. Piglet and Tigger are having a reading contest to see who can read the most books this year. Piglet has already read sixteen books, and she plans to read two books every week for the rest of the year. Tigger has only read four books, but he plans to catch up by reading four books per week.

- a. Write a system of equations to represent this situation.

Piglet: $y = 2x + 16$

Tigger: $y = 4x + 4$

- b. Solve the system from part (a) by graphing.
Hint: You may need to count by 2's on the y-axis.



- c. Will Tigger ever catch up to Piglet? If so, when? How many books will this be?

yes, in 6 weeks they will both have read 28 books.