

Complete in Test Taking

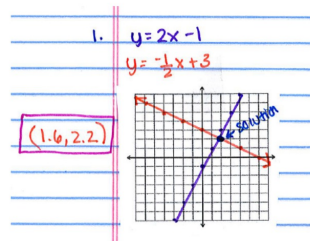
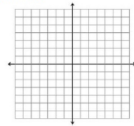
Warm Up a butcher combined hamburger which cost \$4.40 per kilogram with another type of meat which cost \$8.40 per kilogram. How many kilograms of each will he use to make a mixture of 50kg which sells for \$6.00?

	\$	Amt	
hamburger	4.40	x	= 4.40x
other	8.40	50-x	= 8.40(50-x)
Total	6.00	50	= 6.00(50)

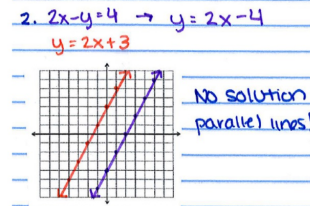
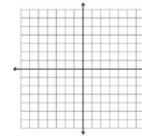
$4.40x + 8.40(50-x) = 6.00(50)$

Solve the system by graphing:

1. $y = 2x - 1$
 $y = -\frac{1}{2}x + 3$



2. $2x - y = 4$
 $y = 2x + 3$



3. Solve using substitution: $2x + 2y = 8$
 $x = y$

$$\begin{array}{l} 2x + 2y = 8 \quad x=y \\ 2y + 2y = 8 \\ 4y = 8 \\ y = 2 \quad x = 2 \end{array}$$

4. Solve using substitution: $x + 6y = -2$
 $y = 2 - x$

$$\begin{array}{l} x + 6y = -2 \quad y = 2 - x \\ x + 6(2 - x) = -2 \\ x + 12 - 6x = -2 \quad y = 2 - 2.8 \\ -5x + 12 = -2 \quad y = -0.8 \\ -5x = -14 \\ x = 2.8 \quad y = -0.8 \end{array}$$

5. What method would you use to solve the following? $4x - 2y = 1$ and $y = 2x - 7$

5. Substitution

6. The sum of two numbers is 27 and the difference is 19. Find the 2 numbers.

$$\begin{array}{l} 6. \quad x = 1^{\text{st}} \# \quad x + y = 27 \quad 23 + y = 27 \\ \quad y = 2^{\text{nd}} \# \quad x - y = 19 \quad y = 4 \\ \quad \quad \quad \quad 2x = 46 \\ \quad \quad \quad \quad x = 23 \end{array}$$

7. Solve using elimination: $4x + y = 14$
 $3x + 2y = 8$

$$\begin{array}{r} 7. \quad (4x + y = 14) \cdot (-2) \rightarrow -8x - 2y = -28 \quad 4(4) + y = 14 \\ 3x + 2y = 8 \quad \quad 3x + 2y = 8 \quad \quad 16 + y = 14 \\ \hline \quad \quad \quad \quad \quad -5x = -20 \quad \quad y = -2 \\ \quad \quad \quad \quad \quad x = 4 \end{array}$$

- find the sum of x and y: $4x + y = -1$
 $-5x - y = 0$

$$\begin{array}{r} 8. \quad 4x + y = -1 \quad 4(1) + y = -1 \\ -5x - y = 0 \quad \quad 4 + y = -1 \\ \hline -x = -1 \quad \quad y = -5 \\ \quad \quad \quad x = 1 \end{array} \quad \boxed{\begin{array}{l} x=1 \\ y=-5 \end{array}}$$

9. How many solutions does the following have: $y = 3x - 2$ and $2x + 5y = 7$? -5x

$$\begin{array}{r} 9. \quad y = 3x - 2 \quad 2x + 5y = 7 \\ \quad \quad \quad \quad \quad 5y = -2x + 7 \\ \quad \quad \quad \quad \quad y = \frac{-2x + 7}{5} \end{array} \quad \boxed{\text{Different slopes = intersection, so 1 solution.}}$$

10. A student bought 3 boxes of pencils and 2 boxes of pens for \$6.00. He then bought 2 boxes of pencils and 4 boxes of pens for \$8.00 find the cost of each box.

$$\begin{array}{rcl}
 10. \quad x = \text{pencils} & (3x + 2y = 6) \cdot 2 & \\
 y = \text{pens} & 2x + 4y = 8 & 3(1) + 2y = 6 \\
 & -6x - 4y = -12 & 3 + 2y = 6 \\
 & 2x + 4y = 8 & 2y = 3 \\
 \boxed{\text{pencils} = \$1} & -4x = -4 & y = 1.50 \\
 \boxed{\text{pens} = \$1.50} & x = 1 &
 \end{array}$$

11. Ashley has 15 coins that are nickels and dimes. The total value of the coins is \$1.25. How many dimes does she have?

$$\begin{array}{rcl}
 11. \quad x = \# \text{ of nickels} & (x + y = 15) \cdot 5 & \boxed{5 \text{ nickels}} \\
 y = \# \text{ of dimes} & 5x + 10y = 125 & \boxed{10 \text{ dimes}} \\
 & -5x - 5y = -75 & \\
 & 5y = 50 & \\
 & y = 10 &
 \end{array}$$

12. A bicycle rental shop at the beach has two seat and one seat bikes. The company has 42 vehicles that seat 84 people. Write a system of equations to represent this situation.

12. $x = \#$ 2 seat bikes
 $y = \#$ 1 seat bikes

$$\begin{cases} x + y = 42 \\ 2x + 1y = 84 \end{cases}$$

do not solve!

13. Jason has saved \$ 60 and plans to save \$20 a month, while Jacob has saved \$45 and plans to save \$40 a month when will their savings be the same.

13. $x = \#$ of months
 $y = \text{savings}$

Jason: $y = 60 + 20x$
 Jacob: $y = 45 + 40x$

$$60 + 20x = 45 + 40x$$

$$15 = 20x$$

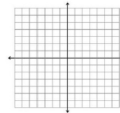
$$x = 0.75 \text{ months}$$

14. Use elimination to solve: $5x + 7y = 3$
 $2x + 3y = 1$

$(5x + 7y = 3) \cdot 2 \rightarrow 10x + 14y = 6$	$5x + 7(-1) = 3$
$(2x + 3y = 1) \cdot (-5) \rightarrow -10x - 15y = -5$	$5x - 7 = 3$
$-1y = 1$	$5x = 10$
$y = -1$	$x = 2$
$x = 2$	$y = -1$

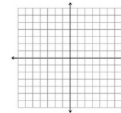
15. Solve the system of inequalities by graphing

$y > -5x - 6$
 $y > -x - 1$



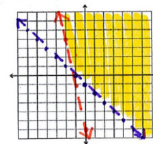
16. Solve by graphing $x - y \geq 3$

$y < -2$



15. Solve the system of inequalities by graphing

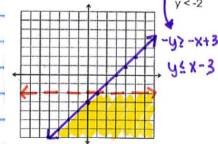
$y > -5x - 6$
 $y > -x - 1$



16.

16. Solve by graphing $x - y \geq 3$

$y < -2$



17. Is $(0, 1)$ a solution of the inequalities $1 - x \geq 3y$ and $3y - 1 > 2x$?

17. $(0, 1)$ $1 - 0 \geq 3(1)$ and $3(1) - 1 > 2(0)$
 $x \ y$ $1 \geq 3$ $2 > 0$
 False $2 > 0$ True

Not a solution

** * if graphed, not located in shaded region \rightarrow still not a solution*

18. How much of a 40% saltwater solution do you need to mix with a 15% saltwater solution to make 50 gallons of a 25% saltwater solution?

18. $x =$ amt of 40% solution

	%	Amt	Equation
Mix A	0.40	x	$0.4x + 0.15(50 - x) = 0.25(50)$
Mix B	0.15	$50 - x$	$0.4x + 7.5 - 0.15x = 12.5$
Total	0.25	50	$0.25x = 5$ $x = 20 \text{ gal}$

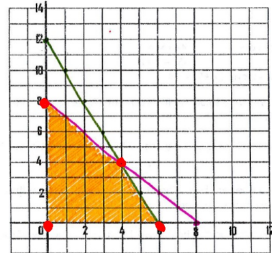
• 20 gal of 40% saltwater solution
 • 30 gal of 15% saltwater solution

19. Mark is making cherry pie and apple pie for a fundraiser. Mark is confident that he will be able to sell all the pies that he makes. There are two constraints that limit his production today:

SUGAR: Each cherry pie requires 2 cups of sugar. Each apple pie requires 2 cups of sugar. Mark only has 16 cups of sugar.

Flour: Each cherry pie requires 4 cups of flour. Each apple pie requires 2 cups of flour. Mark only has 24 cups of flour.

Write two inequalities. Then, find the intersection of these inequalities to show all combinations of pies that Mark can make with the two constraints given.



Let $x =$ # of cherry pies
 $y =$ # of apple pies

Inequality #1: $2x + 2y \leq 16$
 X-intercept: $(8,0)$ Y-intercept: $(0,8)$

Inequality #2: $4x + 2y \leq 24$
 X-intercept: $(6,0)$ Y-intercept: $(0,12)$

Suppose each cherry pie makes a profit of \$5.50 and each apple pie makes a profit of \$4.25. How many cherry pies and apple pies should Mark make in order to maximize his profit?

Objective Function: Profit = $5.50x + 4.25y$

Vertex 1: $(0,0) = 5.50(0) + 4.25(0) = 0$

Vertex 2: $(0,8) = 5.50(0) + 4.25(8) = 34$

Vertex 3: $(4,4) = 5.50(4) + 4.25(4) = 39$ ✓

Vertex 4: $(6,0) = 5.50(6) + 4.25(0) = 33$

Solution: Mark should make 4 cherry and 4 apple to maximize his profit.

Exit ticket will be on picker

Exit ticket

The Mapple store sells Mapple computers and printers. The computers are shipped in 12-cubic-foot boxes and printers in 8-cubic-foot boxes. The Mapple store estimates that at least 30 computers can be sold each month and that the number of computers sold will be at least 50% more than the number of printers. The computers cost the store \$1000 each and are sold for a profit of \$1000. The printers cost \$300 each and are sold for a profit of \$350. The store can spend \$39,000 each month on computers and printers.

How many computers and how many printers should be sold each month to maximize profit? What is the maximum profit?

When finished begin on problems on page 407

Homework pg 407