

Directions: Show all work on a separate piece of loose-leaf.

1. Determine which ordered pair is the solution to the system of equations.

a)  $y = x + 9$   
 $x + y = -3$

$$x + (x + 9) = -3$$

$$2x + 9 = -3$$

$$2x = -12$$

$$x = -6$$

b)  $x + y = 14$   
 $x - y = 6$

$$x + y = 14$$

$$x - y = 6$$

$$\hline 2x = 20$$

$$x = 10$$

- 1) (-3,6)      3) (-2,7)       $x = -6$       1) (12,2)      3) (10,4)  
 2) (-6,3)      4) (2,-7)           2) (2,12)      4) (4,10)

2. Solve algebraically using the substitution method. State the solution to this system of equations.

a)  $4x + y = 14$   
 $y = 7x - 19$

$$4x + (7x - 19) = 14$$

$$11x - 19 = 14$$

$$+19 +19$$

$$\hline 11x = 33$$

$$x = 3$$

b)  $y - 3x = 10$   
 $y = 6x + 13$

$$y = 6x + 13$$

$$y - 3x = 10$$

$$\hline 3x + 13 = 10$$

$$-13 -13$$

$$\hline 3x = -3$$

$$x = -1$$

$y = 6(-1) + 13$   
 $y = -6 + 13$   
 $y = 7$

3. Solve algebraically using the elimination method. State the solution to this system of equations.

a)  $x + y = 30$   
 $x + y = 8$

$$x + y = 30$$

$$-1x - y = -19$$

$$\hline 2x = 38$$

$$x = 19$$

b)  $x + y = 42$   
 $x - y = -2$

$$x + y = 42$$

$$x - y = -2$$

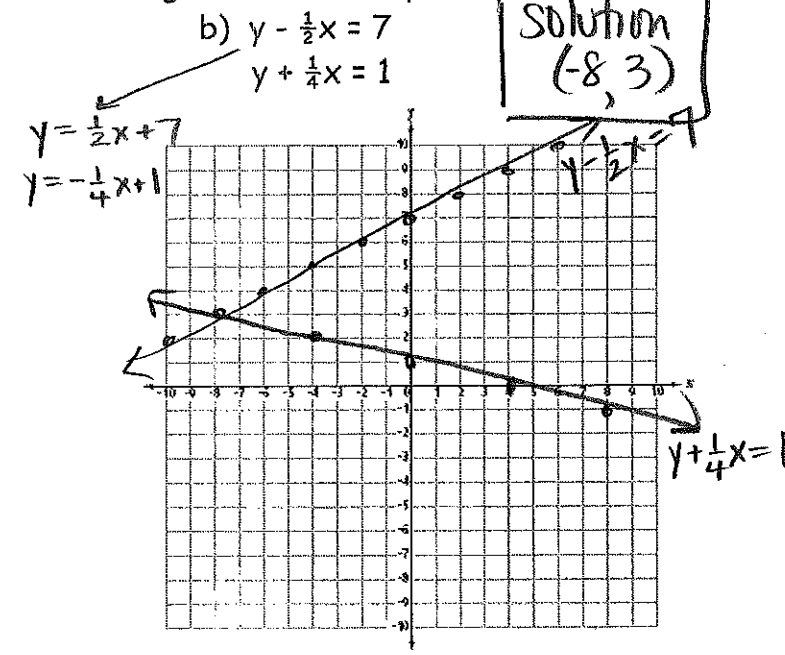
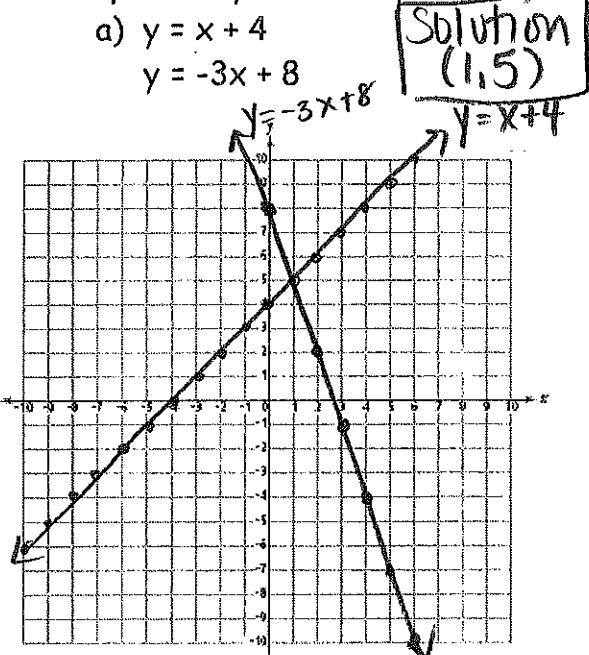
$$\hline 2x = 40$$

$$x = 20$$

$x + y = 42$   
 $20 + y = 42$   
 $-20 -20$   
 $\hline y = 22$

4. You buy 3 T-shirts and 2 pairs of shorts for \$42.50. Your friend buys 5 T-shirts and 3 pairs of shorts for \$67.50. Let "T" represent the cost of one T-shirt and "S" represent the cost of one pair of shorts. Determine the cost of one T-shirt and one pair of shorts. *\* See next page for work*

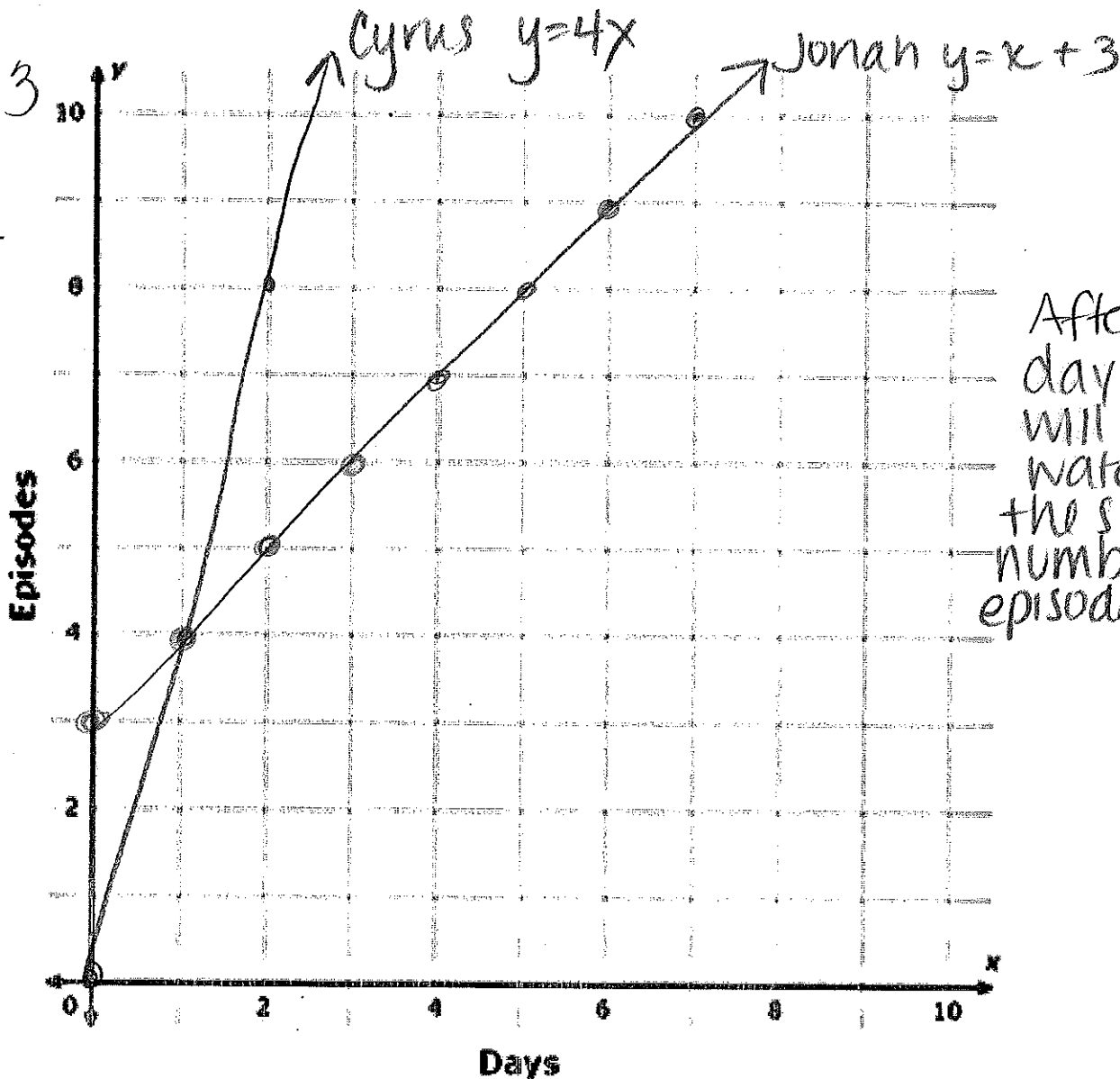
5. Graph the system of equations on the coordinate grid. State the point of intersection.



6. Jonah and Cyrus have decided to watch all the episodes of Andi Mack. Jonah has already watched 3 episodes and will continue to watch the show at a rate of 1 episode per day. Cyrus, who hasn't seen the show, will start watching 4 episodes per day. Once Jonah and Cyrus get to the point where they have watched the same number of episodes, they plan to finish the series together. How long will that take?

Jonah  
 $y = 1x + 3$

Cyrus  
 $y = 4x$



After 1 day BOTH will have watched the same number of episodes.

#4 ①  $3T + 2S = 42.50$   
 ②  $5T + 3S = 67.50$

$$\begin{array}{r} 3T + 2S = 42.50 \\ 3T + 2(10) = 42.50 \\ 3T + 20 = 42.50 \\ -20 \quad -20 \\ \hline 3T = 22.50 \\ \boxed{T = \$7.50} \end{array}$$

NEW ①  $5(3T + 2S = 42.50) \rightarrow 15T + 10S = 212.5$   
 NEW ②  $-3(5T + 3S = 67.50) \rightarrow -15T - 9S = -202.5$

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$S = \$10$