Name: _____ **Period:** _____

Notes #8 – Systems of Equations

Solve the following systems algebraically, find the solution.

1. $\begin{cases} -2x + y = -12 \\ -x + y = -5 \end{cases}$

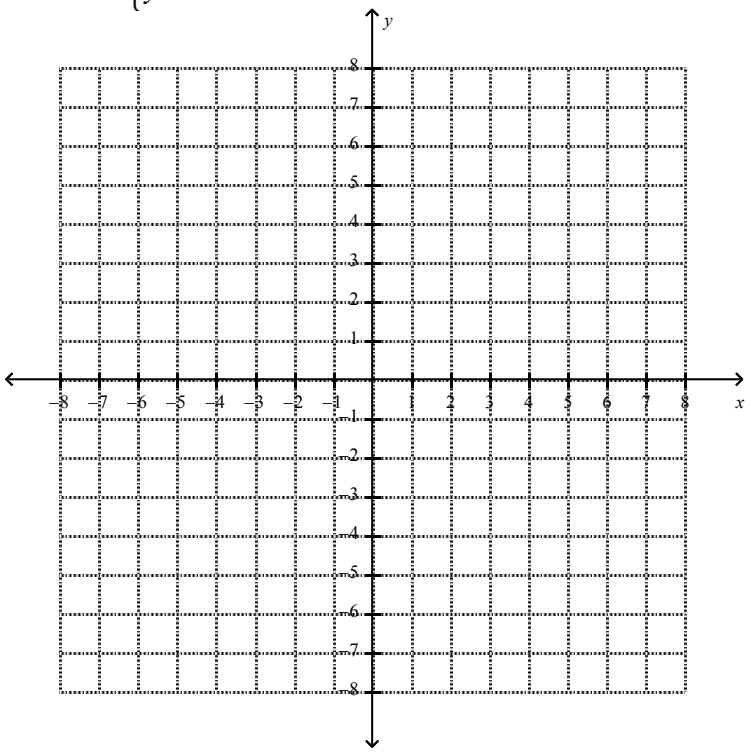
2. $\begin{cases} x + y = 3 \\ -x + y = 9 \end{cases}$

3. $\begin{cases} y = x \\ y = -x + 2 \end{cases}$

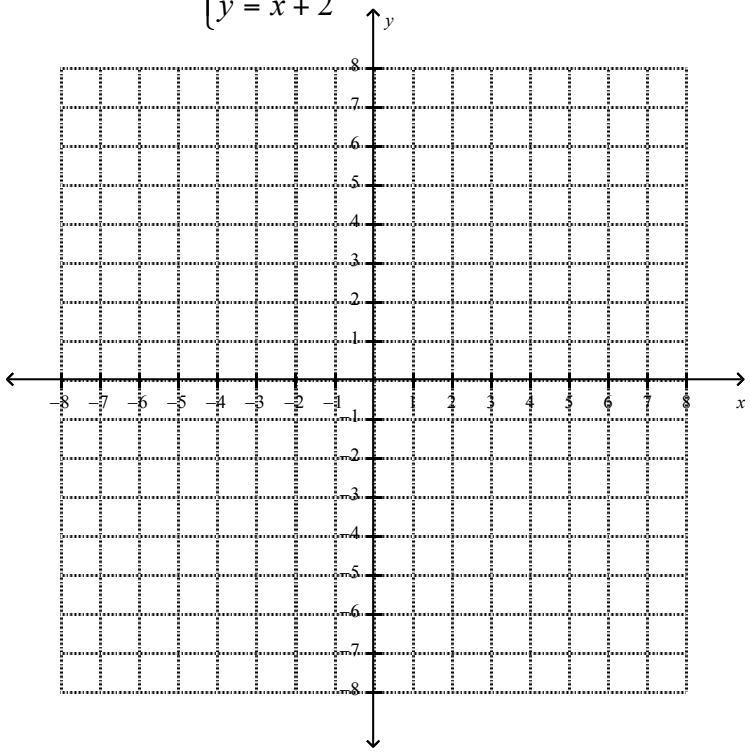
4. $\begin{cases} 2x + y = 2 \\ y = 3x + 2 \end{cases}$

Find the solution to the following systems graphically.

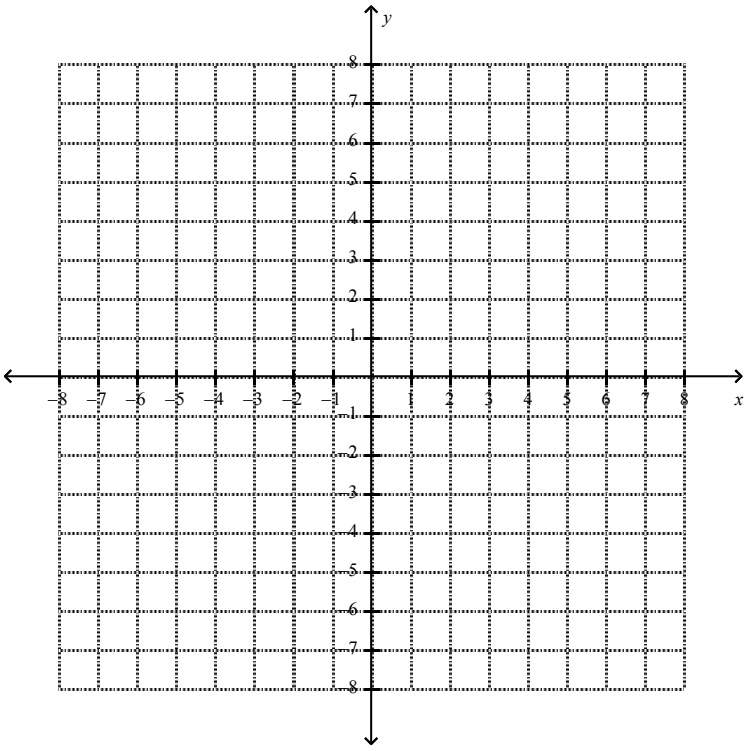
5. $\begin{cases} y = -2x + 2 \\ y = -2x - 1 \end{cases}$



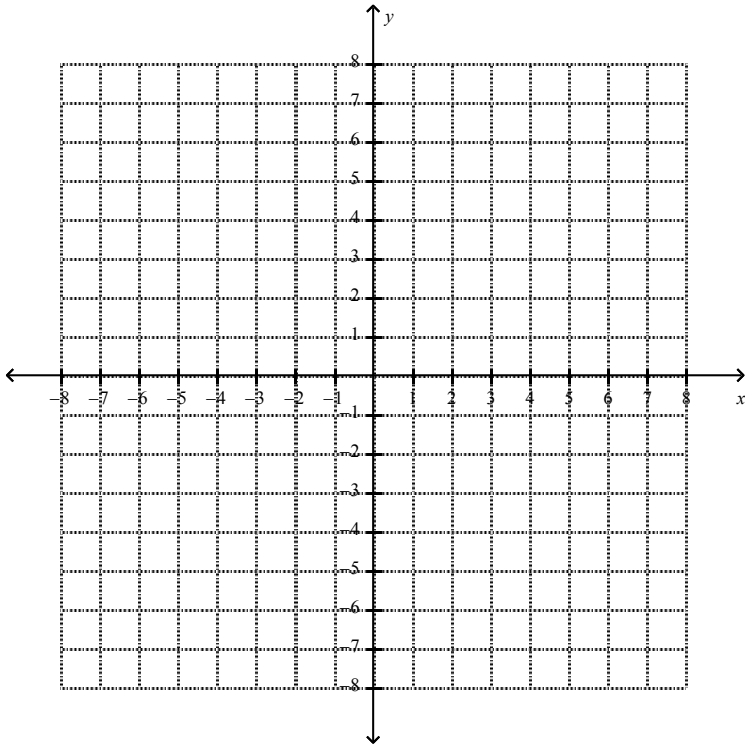
6. $\begin{cases} y = -\frac{3}{2}x + 7 \\ y = x + 2 \end{cases}$



7. $\begin{cases} \frac{3}{2}x + y = -2 \\ y = 4x - 2 \end{cases}$

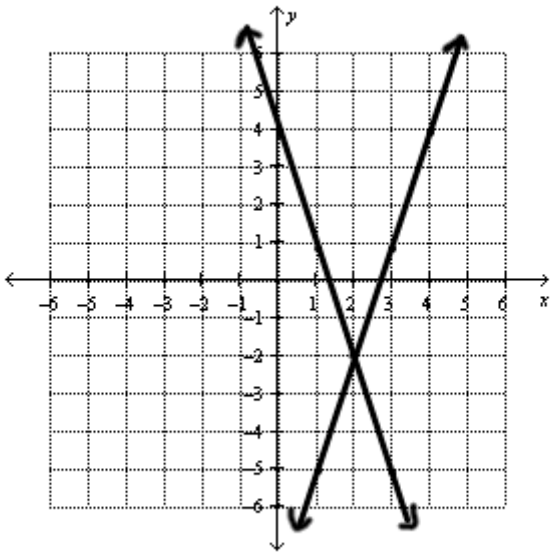


8. $\begin{cases} y = 4x - 2 \\ -4x + y = -2 \end{cases}$

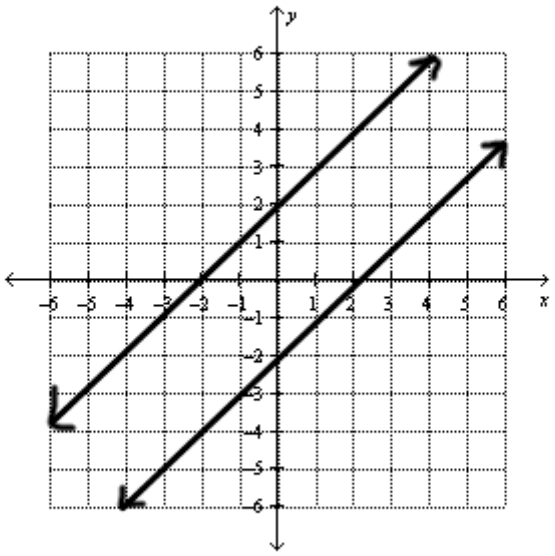


What is the solution of the system of linear equations graphed below?

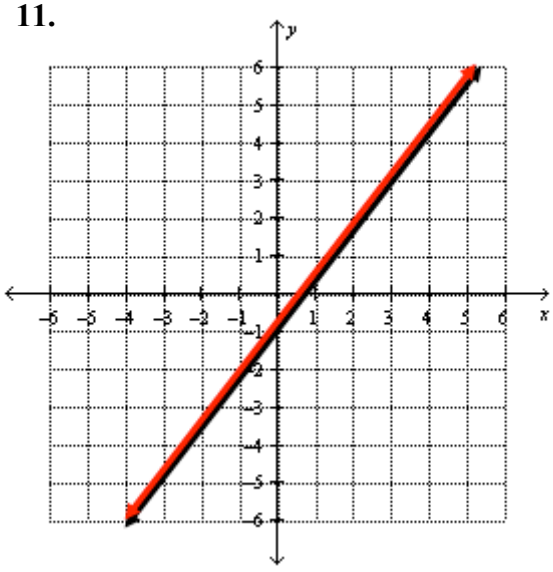
9.



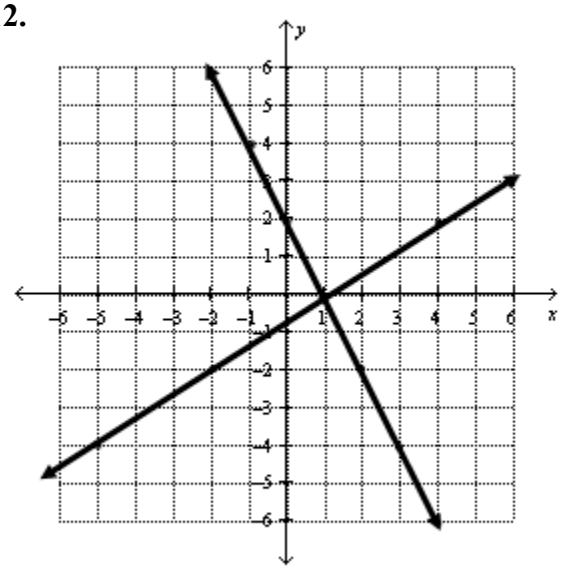
10.



11.



12.



13. Sam is planning a ski trip and wants to figure out which mountain offers the best deal. Sam needs to rent skis and buy a lift ticket. He researched his options, and he found the following two packages which include ski rental and lift ticket:

Zippity Ski Slopes Rental Package	***Cruising Ski Slopes Rental Package***
$5 + $ 5 per hour for rental	$20 + $ 2 per hour for rental

Under what circumstances are the costs for the ski packages the same, and what will that cost be?

14. Marcello is an artist who makes oil paintings and charcoal sketches. He sells each oil painting for $500 and each charcoal sketch for $300. If Marcello wants to create 56 works in total, how many pieces of artwork must he sell in order to make exactly $20,000?

Spiral:

Solve the equation and check your solution.

1. $-7x-13=15$

2. $-4-6x=-22$

Find the value of *y* when *x* = -2.

3. $3x-2y=10$

4. $3=2x-y$

Calculate the *y*-value for the given *x*-value.

5. $y=\frac{1}{2}x-4$ when $x=24$

6. $y=-5x-7$ when $x=\frac{3}{15}$

7. $y=\frac{2}{3}x-12$ when $x=-18$

8. $y=-\frac{1}{4}x-\frac{3}{4}$ when $x=-6$

Write an equation for the line satisfying the given conditions.

9. passes through (4, 0) and (0, 3)

10. slope = $\frac{2}{3}$, passing through the point (3, 4)

11. passes through the points (5, 4) and (1, 7)