

Name: _____

Matrix Madness 1.5H



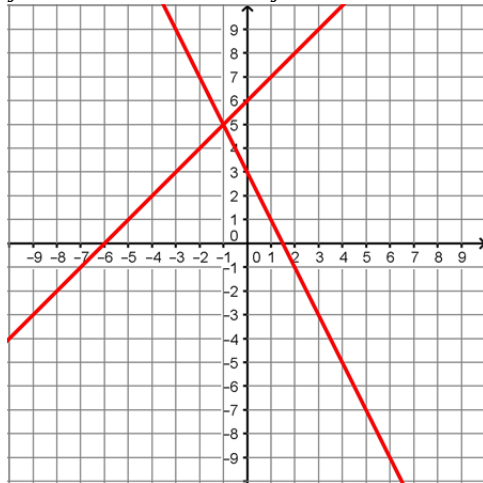
Ready, Set, Go!

Ready

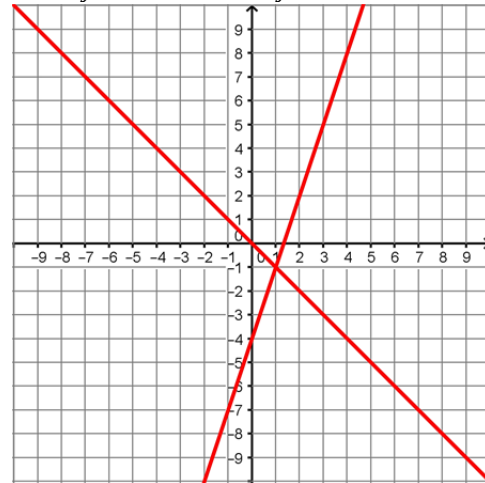
Topic: Solve systems of equations

Solve the following systems by graphing. Check the solution by evaluating both equations at the point of intersection.

1. $y = x + 6$ and $2x + y = 3$

 $(-1, 5)$

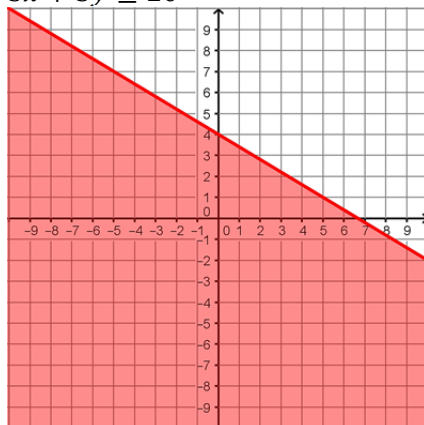
2. $3x - y = 4$ and $x + y = 0$

 $(1, -1)$

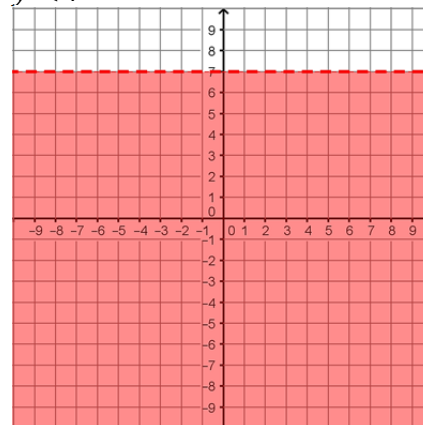
Topic: Graph linear inequalities

Graph the following inequalities on the coordinate plane. Name one point that is a solution to the inequality and one point that is not a solution. Show algebraically and graphically that your points are correct.

3. $3x + 5y \leq 20$

**Solution:** $(0, 0)$ **Not a solution:** $(8, 3)$

4. $y < 7$

**Solution:** $(0, 0)$ **Not a solution:** $(0, 8)$

Set

Topic: Matrix Arithmetic

Perform each of the operations indicated on the matrices below.

5. $\begin{bmatrix} -3 & 5 \\ 4 & -7 \end{bmatrix} + \begin{bmatrix} 8 & 9 \\ -6 & -5 \end{bmatrix}$

$$\begin{bmatrix} 5 & 14 \\ -2 & -12 \end{bmatrix}$$

6. $\begin{bmatrix} 11 & -12 \\ -4 & 6 \\ 5 & 8 \end{bmatrix} - \begin{bmatrix} 1 & -20 \\ -15 & 9 \\ 2 & -2 \end{bmatrix}$

$$\begin{bmatrix} 10 & 8 \\ 11 & -3 \\ 3 & 10 \end{bmatrix}$$

7. $5 \times \begin{bmatrix} 4 & -2 & 9 \\ 5 & 7 & -8 \end{bmatrix}$

$$\begin{bmatrix} 20 & -10 & 45 \\ 25 & 35 & -40 \end{bmatrix}$$

8. $\begin{bmatrix} 6 & 7 & 8 \\ -3 & 5 & -2 \end{bmatrix} + 4 \begin{bmatrix} -7 & 2 & 1 \\ 1 & -2 & -5 \end{bmatrix}$

$$\begin{bmatrix} -22 & 15 & 12 \\ 1 & -3 & -22 \end{bmatrix}$$

9. An ice-cream stall sells both green tea and mocha ice cream. A small portion of either costs \$0.75 and a large portion costs \$1.25. During a short period of time, the number of ice creams sold is shown in the table below.

	small	large
Green Tea	3	4
Mocha	6	3

- a. Write down a column matrix N , representing the cost of each portion of ice cream.

$$N = \begin{bmatrix} 0.75 \\ 1.25 \end{bmatrix}$$

- b. Given that $M = \begin{bmatrix} 3 & 4 \\ 6 & 3 \end{bmatrix}$, evaluate MN .

$$MN = \begin{bmatrix} 7.25 \\ 8.25 \end{bmatrix}$$

- c. Explain what the numbers given in your answer in (b.) signify.

\$7.25 is the amount received from the sales of green tea ice cream while \$8.25 is the amount received from the sale of mocha ice cream.

Go

Topic: Evaluating Expressions

Evaluate each expression below given: $x = 7$, $y = -3$, and $z = 5$

10. $\frac{xy-z}{2}$

-13

11. $5x - 2^3 + (2y + z)^4$

28

12. $\frac{(z-3)^6}{6y-2x}$

-2

13. $(6x - 5y + 4z)^2$

5929

14. $\frac{2(x-z)}{6}$

 $\frac{2}{3}$

15. $5(y - 6) - (y - 6) + 2y - 12$

-54

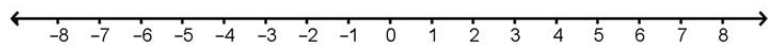
Topic: Solving absolute value equation and inequalities

Solve each equation or inequality. Graph the solution on the number line. For the inequality, write the answer in both inequality and interval notations.

16. $|x + 2| \leq 3$

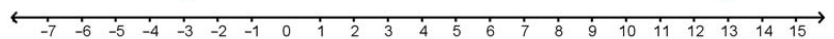
$-5 \leq x \leq 1$

$[-5, 1]$



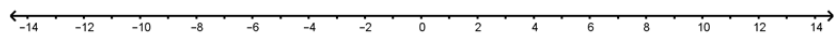
17. $|5 - x| = 8$

$x = -3$ or $x = 13$



18. $3 - |x + 2| = 0$

$x = -5$ or $x = 1$



19. $-12 \leq -2|4 + 2x|$

$x \leq -5$ or $x \geq 1$

