

$$y = 2x - 3$$

$$y = -\frac{3}{7}x + \frac{47}{7}$$

$$y = -\frac{1}{3}x + \frac{13}{3}$$

$$y = 2x + 9$$

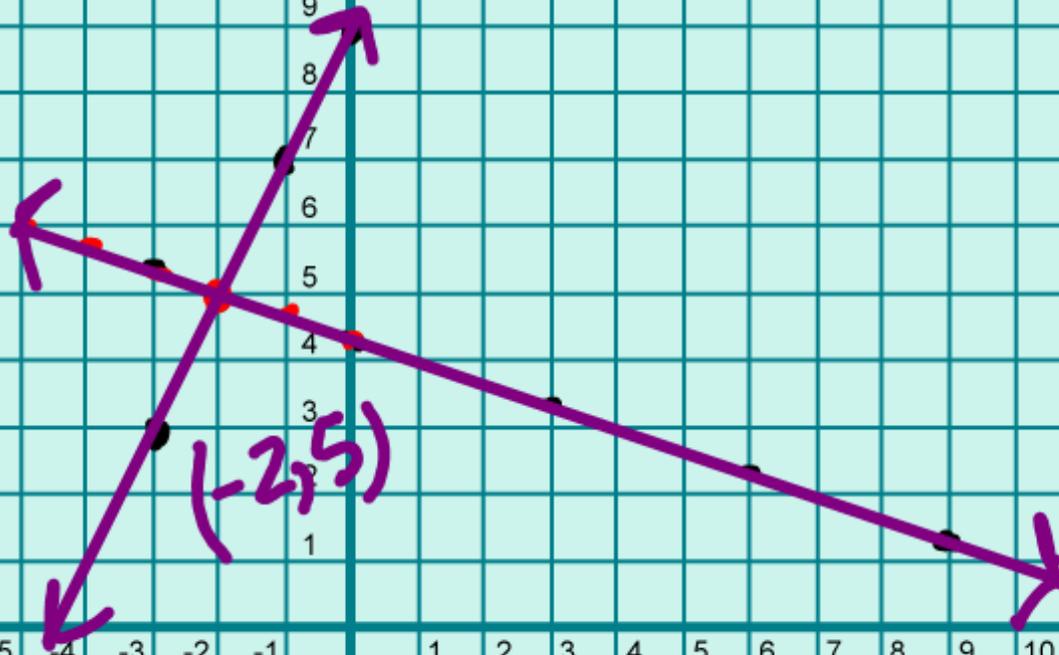
$$y = 2x + 9$$

X

-14 -13 -12 -11 -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 1 2 3 4 5 6 7 8 9 10 11 12 13 14

10  
9  
8  
7  
6  
5  
4  
3  
1  
-1  
-2  
-3  
-4  
-5  
-6  
-7  
-8  
-9  
-10

Y



$$42. \textcircled{1} 2x - 3y + 4z = 8$$

$$\textcircled{2} 3x + 2y = 7$$

$$\textcircled{3} x = 1$$

$$3(\overset{3}{1}) + 2y = \overset{-3}{7}$$

$$\frac{2y}{\cancel{2}} = \frac{4}{2}$$

$$y = 2$$

$$2(1) - 3(2) + 4z = 8$$

$$2 - 6 + 4z = 8$$

$$-4 + 4z = 8 + 4$$

$$4z = 12$$

$$\frac{4}{\cancel{4}} z = \frac{12}{\cancel{4}}$$

$$z = 3$$

$$(1, 2, 3)$$

## 3.2 Systems of Equations

1. Graph

2. Substitution

3. Elimination → Addition  
Subtraction

$$\begin{array}{r}
 2x + y = 8 \\
 + \quad x - y = 10 \\
 \hline
 3x \quad = 18 \\
 \underline{\quad} \quad \underline{\quad} \\
 3x \quad = 18 \\
 \underline{\quad} \quad \underline{\quad} \\
 x = 6
 \end{array}$$

$$x = 6$$

$$(6, -4)$$

$$\begin{array}{r}
 6 - y = 10 \\
 -y = 4 \\
 \underline{\quad} \quad \underline{\quad} \\
 -y = 4 \\
 \underline{\quad} \quad \underline{\quad} \\
 y = -4
 \end{array}$$

$$2x - 5y = 22$$

$$2x - 3y = 6 \quad \cdot -1$$

$$\begin{array}{r}
 2x - 3(-9) = 6 \\
 2x + 27 = 6 \\
 2x = -21 \\
 \frac{2x}{2} = \frac{-21}{2} \\
 x = -9
 \end{array}
 \quad
 \begin{array}{r}
 2x - 5y = 22 \\
 -2x + 3y = -6 \\
 \hline
 -2y = 16 \\
 \frac{-2y}{-2} = \frac{16}{-2} \\
 y = -8
 \end{array}
 \quad
 \begin{array}{r}
 2x \\
 -6 \\
 \hline
 16
 \end{array}$$

$$2x - 5(-8) = 22$$

$$2x + 40 = 22$$

$$\frac{2x}{2} = \frac{-18}{2}$$

$$x = -9$$

$$(-9, -8)$$

Subtract

$$2x - 5y = 22$$

$$- 2x - 3y = 6$$

$$\begin{array}{r}
 -2y = 16 \\
 \frac{-2y}{-2} = \frac{16}{-2} \\
 y = -8
 \end{array}$$

$$y = -8$$

$$y = 2x + 5$$

$$\frac{3y}{3} = \frac{6x + 15}{3}$$

$$y = 2x + 5$$

$$2x - 7y = 3 \quad \cdot 5$$

$$5x - 4y = -6 \quad \cdot 2$$

$$\begin{array}{r} 10x - 35y = 15 \\ + \quad -10x + 8y = 12 \\ \hline \end{array}$$

$$\begin{array}{r} -27y = 27 \\ \underline{-27} \quad \underline{-27} \end{array}$$

$$y = -1$$

$$2x - 7y = 3$$

$$2x - 7(-1) = 3$$

$$2x + 7 = 3$$

$$\begin{array}{r} 2x = -4 \\ \underline{2} \quad \underline{2} \end{array}$$

$$x = -2$$

$$(-2, -1)$$

$$5x - 3y = 8 \quad \bullet -2$$

$$10x - 6y = 18$$

$$-10x + 6y = -16$$

$$10x - 6y = 18$$

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$$0 \neq 2$$

No Solution Not  
True

Parallel

Inconsistent

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Addition

coefficients of  
variable to be  
opposites

ex  $3x$   $-3x$   
 $2x$   $-2x$   
 $7y$   $-7y$

Subtraction

coefficients of  
1 variable to be  
the same

ex  $2x$   $2x$   
 $5y$   $5y$