

11-11-19 1st Trig

What is y if $x = 4$ if

$$x + y = 10$$

Sub 4 into x .

$$\textcircled{1} \begin{cases} y = x + 3 \\ x + y = 11 \end{cases}$$

$$x + x + 3 = 11$$

$$2x + 3 = 11$$

$$x = 4$$

$$\begin{aligned} y &= x + 3 \\ y &= 4 + 3 \\ y &= 7 \end{aligned}$$

$$\textcircled{2} \begin{cases} 2x + 3y = 16 \\ y = x - 3 \end{cases}$$

$$2x + 3(x - 3) = 16$$

$$2x + 3x - 9 = 16$$

$$5x - 9 = 16$$

$$\begin{array}{r} +9 \quad +9 \\ \hline 5x = 25 \end{array}$$

$$x = 5$$

$$\begin{aligned} y &= 5 - 3 \\ y &= 2 \end{aligned}$$

$$\textcircled{3} \begin{cases} a - b = 2 \\ b = 4a - 11 \end{cases}$$

$$a - (4a - 11) = 2$$

$$a - 4a + 11 = 2$$

$$\begin{array}{r} -3a + 11 = 2 \\ \hline -11 \quad -11 \end{array}$$

$$\begin{array}{r} -3a = -9 \\ \hline -3 \quad -3 \end{array}$$

$$a = 3$$

$$b = 4a - 11$$

$$b = 4 \cdot 3 - 11$$

$$b = 1$$

$$\textcircled{4} \begin{cases} c = a + 2 \\ a - 2c = -3 \end{cases}$$

$$a - 2(a + 2) = -3$$

$$a - 2a - 4 = -3$$

$$\begin{array}{r} -a - 4 = -3 \\ +4 \quad +4 \\ \hline -a = 1 \end{array}$$

$$-a = 1$$

$$a = -1$$

$$\begin{aligned} c &= a + 2 \\ c &= -1 + 2 \\ c &= 1 \end{aligned}$$

$$\textcircled{5} \begin{cases} y = 2x + 1 \\ y - 2x = 3 \end{cases}$$

$$2x + 1 - 2x = 3$$

$$1 = 3 \text{ FALSE}$$

No solutions

because the lines
are parallel.

$$\textcircled{6} \begin{cases} y = -x - 1 \\ x - y = 5 \end{cases}$$

$$x - (-x - 1) = 5$$

$$x + x + 1 = 5$$

$$2x + 1 = 5$$

$$x = 2$$

$$y = -2 - 1$$

$$y = -3$$

11-11-19 3rd Trig

If $y=3$ what is x in
 $x+y=10$?
 $x+3=10$
 $x=7$

① $\begin{cases} x+y=8 \\ y=x+2 \end{cases}$ $\begin{cases} x+x+2=8 \\ 2x+2=8 \\ x=3 \\ \therefore y=5 \end{cases}$

② $\begin{cases} y=x-3 \\ x-y=10 \end{cases}$
 $x-(x-3)=10$
 $x-x+3=10$
 $3=10$ FALSE
No Solution

③ $\begin{cases} y=3x-1 \\ x-y=5 \end{cases}$
 $x-(3x-1)=5$
 $x-3x+1=5$
 $-2x+1=5$
 $\begin{array}{r} -1-1 \\ \hline -2x-4 \end{array}$
 $x=-2$ $\begin{cases} y=3(-2)-1 \\ y=-7 \end{cases}$

$$\textcircled{4} \begin{cases} 2x - 2y = -2 \\ y = x + 1 \end{cases}$$

$$2x - 2(x + 1) = -2$$

$$2x - 2x - 2 = -2$$

$$-2 = -2 \text{ TRUE}$$

Every body works \mathbb{R}

Coincident lines



$$\textcircled{5} \begin{cases} y = 2x - 1 \\ y = 3x + 5 \end{cases}$$

$$\begin{array}{r} 2x - 1 = 3x + 5 \\ -2x \quad -2x \\ \hline \end{array}$$

$$\begin{array}{r} -1 = x + 5 \\ -5 \quad -5 \\ \hline \end{array}$$

$$-6 = x$$

$$y = 2(-6) - 1$$

$$y = -13$$

11-11-19 4th Trig

What is y in

$$x + y = 10 \quad \text{if } x = 3$$

$$\textcircled{1} \begin{cases} x + y = 7 \\ y = x - 1 \end{cases}$$

$$x + x - 1 = 7$$

$$2x - 1 = 7$$

$$\begin{array}{r} +1 \quad -1 \\ \hline 2x = 8 \end{array}$$

$$x = 4$$

$$\begin{aligned} y &= 4 - 1 \\ y &= 3 \end{aligned}$$

(4, 3)

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

$$x - (3x + 2) = -4$$

$$x - 3x - 2 = -4$$

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

$$\begin{aligned} -2x &= -2 \\ x &= 1 \end{aligned}$$

$$\begin{aligned} y &= 3(1) + 2 \\ y &= 5 \end{aligned}$$

$$\textcircled{3} \begin{cases} y = 4x + 2 \\ y = x + 11 \end{cases}$$

$$\begin{array}{r} 4x + 2 = x + 11 \\ -x \quad -x \\ \hline 3x + 2 = 11 \end{array}$$

$$\begin{array}{r} 3x + 2 = 11 \\ -2 \quad -2 \\ \hline 3x = 9 \end{array}$$

$$3x = 9$$

$$x = 3$$

$$\begin{aligned} y &= 3 + 11 \\ y &= 14 \end{aligned}$$

$$\textcircled{4} \begin{cases} y = 2x + 1 \\ y - 2x = 3 \end{cases}$$

$$2x + 1 - 2x = 3$$

$$1 = 3 \text{ False}$$

NO Solution

because the lines
are parallel.

If we had $3 = 3$, the
lines are the same. \mathbb{R}

↔ Coincident lines

$$\textcircled{5} \begin{cases} y = -3x - 1 \\ x - 2y = 16 \end{cases}$$

$$x - 2(-3x - 1) = 16$$

$$x + 6x + 2 = 16$$

$$7x + 2 = 16$$

$$\begin{array}{r} 7x + 2 = 16 \\ -2 \quad -2 \\ \hline 7x = 14 \end{array}$$

$$x = 2$$

$$y = -3(2) - 1$$

$$y = -7$$

$$\textcircled{6} \begin{cases} y = 4x - 2 \\ y = -2x + 10 \end{cases}$$

$$\begin{array}{r} 4x - 2 = -2x + 10 \\ +2x \qquad \qquad +2x \\ \hline \end{array}$$

$$\begin{array}{r} 6x - 2 = 10 \\ +2 \qquad \qquad +2 \\ \hline \end{array}$$

$$6x = 12$$

$$x = 2$$

$$\begin{aligned} y &= -2(2) + 10 \\ y &= 6 \end{aligned}$$