11-11-19 1st Trig

What is y if x = 4 if

$x + y = 10$

Sub 4 into x.

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

$x + x + 3 = 11$

$2x + 3 = 11$

$x = 4$

$y = x+3$

$y = 4+3$

$y = 7$

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

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

$2x + 3x - 9 = 16$

$5x - 9 = 16$

$+9 \quad +9$

$5x = 25$

$x = 5$

$y = 5-3$

$y = 2$

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

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

$a - 4a + 11 = 2$

$-3a + 11 = 2$

$-11 \quad -11$

$\frac{-3a}{-3} = \frac{-9}{-3}$

$a = 3$

$b = 4a - 11$

$b = 4 \cdot 3 - 11$

$b = 1$

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

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

$a-2a-4=-3$

$-a-4=-3$

$+4 \quad +4$

$-a=1$

$a=-1$

$c=a+2$

$c=-1+2$

$c=1$

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

$2x+1-2x=3$

$1=3$ FALSE

No Solutions

because the lines are parallel.

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

$x+x+2=8$

$2x+2=8$

$x=3$

$\therefore y=5$

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

$x-(3x-1)=5$

$x-3x+1=5$

$-2x+1=5$

$-1\ -1$

$-2x=4$

$x=-2$

$y=3(-2)-1$

$y=-7$

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

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

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

$-2 = -2$ TRUE

Everybody wins

Coincident lines

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

$2x - 1 = 3x + 5$

$-2x \quad -2x$

$-1 = x + 5$

$-5 \quad -5$

$-6 = x$

$y = 2(-6) - 1$

$y = -13$

11-11-19 4th Trig

What is y in $x + y = 10$ if $x = 3$?

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

$x + x - 1 = 7$

$2x - 1 = 7$

$+1 \quad +1$

$2x = 8$

$x = 4$

$y = 4 - 1$

$y = 3$

$(4, 3)$

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

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

$x - 3x - 2 = -4$

$-2x - 2 = -4$

$+2 \quad +2$

$-2x = -2$

$x = 1$

$y = 3(1) + 2$

$y = 5$

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

$4x + 2 = x + 11$

$-x \quad -x$

$3x + 2 = 11$

$-2 \quad -2$

$3x = 9$

$x = 3$

$y = 3 + 11$

$y = 14$

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

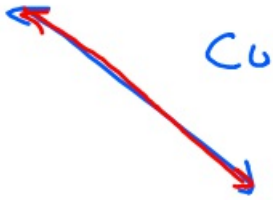
$2x+1-2x=3$

$1=3$ False

No Solution

because the lines are parallel.

If we had $3=3$, the lines are the same.



Coincident lines

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

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

$x+6x+2=16$

$7x+2=16$

$-2 \quad -2$

$7x=14$

$x=2$ $\quad y=-3(2)-1$

$y=-7$

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

$4x - 2 = -2x + 10$

$+2x \qquad +2x$

$6x - 2 = 10$

$+2 \quad +2$

$6x = 12$

$x = 2$

$y = -2(2) + 10$

$y = 6$