Klarke Math 8th Grade

NAME _____ PERIOD _____ DATE _____

2_1: Solving Systems with *y = mx +b*

Remember the $600 raised by selling shirts and caps? It is *ba-a-a-ck!*

How can you find the number of shirts and number of caps sold?

Nyla and Jimfa both write a system of two linear equations.

$$\begin{cases} c + s = 18 \\ 10c + 5s = 125 \end{cases}$$

Nyla and Jinfa both rewrite each equation in slope-intercept form, equivalent equations.

$$\begin{cases} c = -s + 18 \\ c = -0.5s + 12.5 \end{cases}$$

Nyla graphs the two equations. The solution is the intersection point.

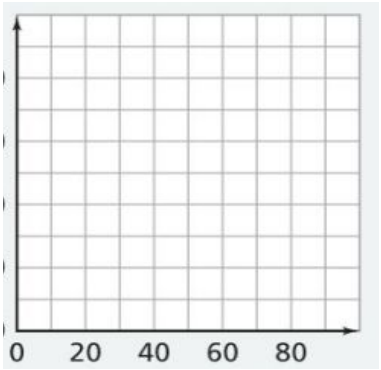
Jimfa sets the two expressions for c equal, then solves for a single variable s.

$$-0.5s + 12.5 = -s + 18$$

A

1. Solve the system using Nyla's method. (BE SURE to label the SCALE, and identify which axis is c and which axis is s.)

$$\begin{cases} c = -s + 18 \\ c = -0.5s + 12.5 \end{cases}$$



Solve the system using Jimfa's method. (Jimfa's method is **symbolic**; he uses symbols only, not a graph, to solve.)

$$-0.5s + 12.5 = -s + 18$$

Solve the linear equation for s.
Then find the related value of c.

How many shirts and caps did the class sell? Explain your reasoning.

In part B, use Jimfa's method; do NOT graph.

B Use symbolic methods to find values of x and y that satisfy each system. Check your solution by substituting the values into the equations and showing that the resulting statements are true.

1. $\begin{cases} y = 1.5x - 0.4 \\ y = 0.3x + 5 \end{cases}$ **2.** $\begin{cases} x + y = 3 \\ x - y = -5 \end{cases}$ **3.** $\begin{cases} 3x - y = 30 \\ x + y = 14 \end{cases}$

4. $\begin{cases} x + 6y = 15 \\ -x + 4y = 5 \end{cases}$ **5.** $\begin{cases} x - y = -5 \\ -2x + 2y = 10 \end{cases}$ **6.** $\begin{cases} x - y = -5 \\ -2x + 2y = 8 \end{cases}$