Name: _____ Systems of Equations – 06

Date: _____

1. Which of the following statements about the system of equations below is **true**?

Eq. 1) **3y = 6x + 24**

Eq. 2) **2y – 4x – 36 = 0**

A) The system has one unique solution

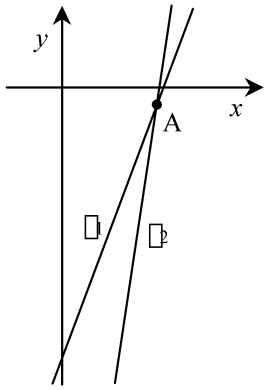
B) The system has two unique solutions

C) The system has no solutions

D) The system has an infinite number of solutions **(5 pts)**

Answer: _____

2. Point A is the intersection of lines $\square_1$ and $\square_2$ represented at right



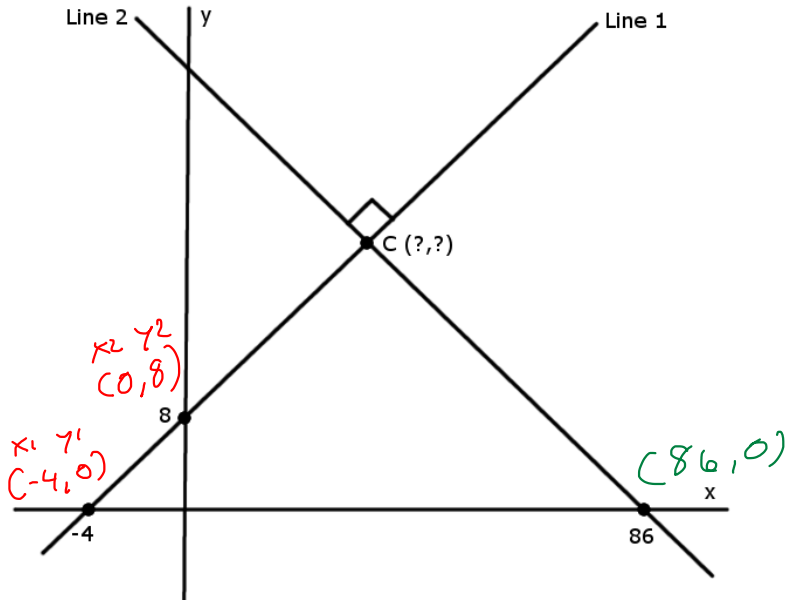
- The equation of line $\square_1$: **$-5x + 2y + 156 = 0$**
- The equation of line $\square_2$: **$y = 6x - 183$**

What are the coordinates of point A?

(5 pts).

A (_____ , _____ **)**

3. Find the **point of intersection** between line 1 and 2.



(86, 0)

(0, 8)

(-4, 0)

line 1

$\frac{y_2 - y_1}{x_2 - x_1} = \frac{8 - 0}{0 - (-4)} = \frac{8}{4} = 2$

$y = 2x + 8$

line 2

NRS

$\frac{2}{1} \rightarrow \frac{-1}{2} = -0.5$

$y = ax + b$

$0 = -0.5(86) + b$

$0 = -43 + b$

$+43 \quad +43$

$43 = b$

$y = 0.5x + 43$

$2x + 8 = -0.5x + 43$

$+0.5x \quad +0.5x$

$2.5x + 8 = 43$

$-8 \quad -8$

$\frac{2.5x}{2.5} = \frac{35}{2.5}$

$y = 14$

$y = 2x + 8$

$y = 2(14) + 8$

$y = 28 + 8$

$y = 36$

(10 pts)

Point of Intersection (14 , 36 **)**

4. Carter gets a job at *Footlocker* selling **shoes** and **shirts**.
He keeps a record of his sales in a table but spilled coffee on it and lost some of the data.

	Shoes x	Shirts y	Total sales ($)
Day 1	12	3	2040
Day 2	6	18	4320
Day 3	10		4000

How many shirts did Carter sell on **day 3**?

Day 1

$12x + 3y = 2040$

$-12x \quad -12x$

$\frac{3y}{3} = \frac{-12x}{3} + \frac{2040}{3}$

$y = -4x + 680$

Day 2

$6x + 18y = 4320$

$-6x \quad -6x$

$\frac{18y}{18} = \frac{-6x}{18} + \frac{4320}{18}$

$y = -0.\overline{3}x + 240$

$-4x + 680 = -0.\overline{3}x + 240$

$+4x \quad +4x$

$680 = 3.\overline{6}x + 240$

$-240 \quad -240$

$\frac{440}{3.\overline{6}} = \frac{3.\overline{6}x}{3.\overline{6}}$

$120 = x$

price of shoes

$y = -4x + 680$

$y = -4(120) + 680$

$y = -480 + 680$

$y = 200$

# of shirts

$10 \times 120 = 1200$

$4000 - 1200 = 2800$

$2800 \div 200 = 14$

(10 pts)

Carter sold 14 **shirts on day 3**