Solving Systems of Equations by Elimination/Addition Method (Part I)

Name _____

Date _____ Per _____

For # 1 – 6, **add** the lines to eliminate one of the variables, then solve. Don't forget to go back and solve for the other variable. Give your final answer as a ordered pair (x, y).

1. $\begin{cases} 7x + 2y = 10 \\ -7x + y = -16 \end{cases}$

$\frac{3y}{3} = \frac{-6}{3}$

$y = -2$

$7x + 2(-2) = 10$

$7x - 4 = 10$

$7x = 14$

$x = 2$

(2 , -2)

2. $\begin{cases} 8x + 11y = 20 \\ 5x - 11y = -59 \end{cases}$

(,)

3. $\begin{cases} -4x - 3y = -15 \\ 4x - 7y = -15 \end{cases}$

(,)

4. $\begin{cases} 2x + 6y = 20 \\ -2x - 5y = 12 \end{cases}$

(,)

5. $\begin{cases} 3x + 6y = 6 \\ 4x - 6y = 8 \end{cases}$

(,)

6. $\begin{cases} 6x - 8y = 40 \\ 5x + 8y = 48 \end{cases}$

(,)

For # 7 – 9, **subtract** the lines to eliminate one of the variables, then solve. Don't forget to go back and solve for the other variable. Give your final answer as a ordered pair (x, y).

7. $\begin{cases} 3x + y = 20 \\ x + y = 12 \end{cases}$ $\times -1$

$3x + y = 20$

$-x - y = -12$

$\frac{2x}{2} = \frac{8}{2}$

$x = 4$

$4 + y = 12$

$-4 \quad -4$

$y = 8$

(4 , 8)

8. $\begin{cases} 5x + 7y = 77 \\ 5x + 3y = 53 \end{cases}$

(,)

9. $\begin{cases} 2y - 2x = -14 \\ -y - 2x = -8 \end{cases}$

(,)

Solving Systems by Elimination/Addition Method (Part II)

Name _____

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Multiply **one** line through by a factor that will force a variable to cancel when the lines are added:

1. $\begin{cases} 7x - 3y = -39 \\ 5x + y = -9 \end{cases}$ (multiply bottom by 3)

$7x - 3y = -39$

$15x + 3y = -27$

$\frac{22x}{22} = \frac{-66}{22}$

$x = -3$

$7(-3) - 3y = -39$

$-21 - 3y = -39$

$+21 \quad +21$

$-3y = -18$

$y = 6$

(-3, 6)

2. $\begin{cases} 3x + 2y = 17 \\ 2x - y = 2 \end{cases}$

(,)

3. $\begin{cases} 2x + 5y = 10 \\ x + 3y = 7 \end{cases}$

(,)

4. $\begin{cases} x + 2y = -2 \\ 5x + 3y = -17 \end{cases}$

(,)

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

(,)

6. $\begin{cases} -2x - y = 3 \\ 3x + 5y = 6 \end{cases}$

(,)

Multiply **both** lines through by a factor that will force a variable to cancel when the lines are added:

7. $\begin{cases} 5x + 4y = 22 \\ 3x - 3y = -3 \end{cases}$ (multiply top by 3, bottom by 4)

$15x + 12y = 66$

$12x - 12y = -12$

$\frac{27x}{27} = \frac{54}{27}$

$x = 2$

$5(2) + 4y = 22$

$10 + 4y = 22$

$4y = 12$

$y = 3$

(2, 3)

8. $\begin{cases} 5x - 2y = -12 \\ 2x + 3y = -1 \end{cases}$

(,)

9. $\begin{cases} 4x - 2y = 20 \\ -3x - 5y = -2 \end{cases}$

(,)