

Practice C

Solving Systems by Elimination

Solve each system by elimination.

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

$$3x = 9$$

$$x = 3$$

$$y = -1$$

$$(3, -1)$$

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

$$-3x + 2y = 2$$

$$3y = 12$$

$$y = 4$$

$$x = 2$$

$$(2, 4)$$

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

$$2x = -2$$

$$x = -1$$

$$y = -6$$

$$(-1, -6)$$

$$4. \begin{cases} -3x - 4y = -2 \\ 6x + 4y = 3 \end{cases}$$

$$3x = 1$$

$$x = 1/3$$

$$y = 1/4$$

$$(1/3, 1/4)$$

$$5. \begin{cases} 2x - 2y = 14 \\ x + 4y = -13 \end{cases}$$

$$+ 4x - 4y = 28$$

$$5x = 15$$

$$x = 3$$

$$y = -4$$

$$(3, -4)$$

$$6. \begin{cases} y - x = 17 \\ 2y + 3x = -11 \end{cases}$$

$$+ 3y - 3x = 51$$

$$5y = 40$$

$$y = 8$$

$$x = -9$$

$$(-9, 8)$$

$$7. \begin{cases} x + 6y = 1 \\ 2x - 3y = 32 \end{cases}$$

$$+ -2x - 12y = -2$$

$$-15y = 30$$

$$y = -2$$

$$x = 13$$

$$(13, -2)$$

$$8. \begin{cases} -\frac{1}{2}x + y = 4 \\ \frac{1}{3}x - y = -3 \end{cases}$$

$$+ \frac{1}{3}x - y = -3$$

$$-x + 2y = 8$$

$$+ x - 3y = -9$$

$$-y = -1$$

$$y = 1$$

$$x = -6$$

$$(-6, 1)$$

$$9. \begin{cases} 3x + y = -15 \\ 2x - 3y = 23 \end{cases}$$

$$+ 9x + 3y = -45$$

$$11x = -22$$

$$x = -2$$

$$y = -9$$

$$(-2, -9)$$

$$10. \begin{cases} 5x - 2y = -48 \\ 2x + 3y = -23 \end{cases}$$

$$+ 10x + 15y = -46$$

$$-10x + 4y = 96$$

$$+ 10x + 15y = -46$$

$$19y = 19$$

$$y = 1$$

$$x = -10$$

$$(-10, 1)$$

$$11. \begin{cases} 4x - 3y = -9 \\ 5x - y = 8 \end{cases}$$

$$-3(5x - y) = -15$$

$$-11x = -33$$

$$x = 3$$

$$y = 7$$

$$(3, 7)$$

$$12. \begin{cases} 3x - 3y = -1 \\ 12x - 2y = 16 \end{cases}$$

$$+ -12x + 12y = 4$$

$$10y = 20$$

$$y = 2$$

$$x = 5/3$$

$$(5/3, 2)$$

Solve by elimination:

$$\begin{array}{r} 4x - 6y = 20 \\ + 7x + 6y = 2 \\ \hline 11x = 22 \\ x = 2 \\ 2(2x - 3y = 10) \end{array}$$

$$\begin{array}{l} 11x = 22 \\ x = 2 \\ y = -2 \end{array}$$

$$(2, -2)$$

$$\begin{array}{r} 10x - 5y = 65 \\ + 3x + 5y = 26 \\ \hline 13x = 91 \\ x = 7 \\ y = 1 \end{array}$$

$$(7, 1)$$

$$\begin{array}{r} -10x + 4y = 10 \\ + 3x + 4y = 11 \\ \hline -7x = 21 \\ x = -3 \\ y = 5 \end{array}$$

$$\begin{array}{l} -7x = 21 \\ x = -3 \\ y = 5 \end{array}$$

$$(-3, 5)$$

$$\begin{array}{r} -3(x - 2y = -12) \\ 4. 3x + 8y = 34 \\ + -3x + 6y = 36 \\ \hline 14y = 70 \\ y = 5 \\ x = -2 \end{array}$$

$$(-2, 5)$$

$$\begin{array}{r} -4x + 18y = -70 \\ + 4x + 3y = 7 \\ \hline 21y = -63 \\ y = -3 \\ x = 2 \end{array}$$

$$\begin{array}{l} 21y = -63 \\ y = -3 \\ x = 2 \end{array}$$

$$(2, -3)$$

$$\begin{array}{r} -3(2x + 3y = 0) \\ 6. 6x - 5y = -28 \\ + -6x - 9y = 0 \\ \hline -14y = -28 \\ -14 \quad -14 \\ y = 2 \\ x = -3 \end{array}$$

$$(-3, 2)$$

$$\begin{array}{l} -14y = -28 \\ -14 \quad -14 \\ y = 2 \\ x = -3 \end{array}$$

$$\begin{array}{r} -6x + 3y = -36 \\ + 7x - 3y = 37 \\ \hline -3(2x - y = 12) \end{array}$$

$$\begin{array}{l} x = 1 \\ y = -10 \end{array}$$

$$(1, -10)$$

$$\begin{array}{r} 5x - 4y = 10 \\ 8. 3x - 2y = 6 \\ + -6x + 4y = -12 \\ \hline -x = -2 \\ x = 2 \\ y = 0 \end{array}$$

$$(2, 0)$$

$$\begin{array}{r} -15(x + y = 10) \\ 9. 15x + 28y = 176 \\ + -15x - 15y = -150 \\ \hline 13y = 26 \\ y = 2 \\ x = 8 \end{array}$$

$$(8, 2)$$

$$\begin{array}{r} -9(x + 2y = 21) \\ 10. 9x + 24y = 243 \\ + -9x - 18y = -189 \\ \hline 6y = 54 \\ y = 9 \\ x = 3 \end{array}$$

$$(3, 9)$$

$$\begin{array}{r} 44(x - y = 2) \\ 11. 31x + 44y = 812 \\ + 44x - 44y = 88 \\ \hline 75x = 900 \\ x = 12 \\ y = 10 \end{array}$$

$$(12, 10)$$

$$\begin{array}{r} -60(x + y = 20) \\ 12. 60x + 75y = 1260 \\ + -60x - 60y = -1200 \\ \hline 15y = 60 \\ y = 4 \\ x = 16 \end{array}$$

$$(16, 4)$$