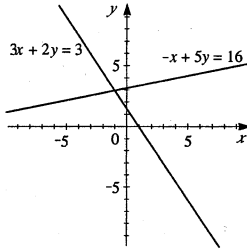


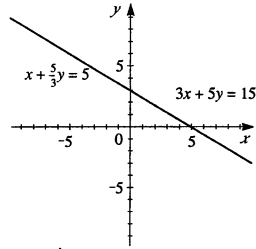
Exercises 10.2

$$2. \begin{cases} 3x + 2y = 3 \\ -x + 5y = 16 \end{cases}$$



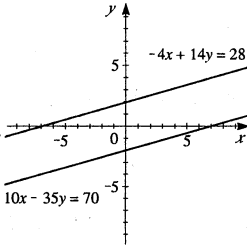
The solution is $x = -1, y = 3$.

$$4. \begin{cases} 3x + 5y = 15 \\ x + \frac{5}{3}y = 5 \end{cases}$$



The solution is $(x, -\frac{3}{5}x + 3)$, for any real number x .

$$6. \begin{cases} -4x + 14y = 28 \\ 10x - 35y = 70 \end{cases}$$



No solution. The lines are parallel, so there is no intersection.

8. $9x - y = -6 \Leftrightarrow y = 9x + 6$. Substituting for y into $4x - 3y = 28$ gives $4x - 3(9x + 6) = 28$
 $\Leftrightarrow -23x = 46 \Leftrightarrow x = -2$, and so $y = 9(-2) + 6 = -12$. Thus, the solution is $(-2, -12)$.
10. $-4x + 12y = 0 \Leftrightarrow x = 3y$. Substituting for x into $12x + 4y = 160$ gives $12(3y) + 4y = 160$
 $\Leftrightarrow 40y = 160 \Leftrightarrow y = 4$, and so $x = 3(4) = 12$. Therefore, the solution is $(12, 4)$.
12. $0.2x - 0.2y = -1.8 \Leftrightarrow x = y - 9$. Substituting for x into $-0.3x + 0.5y = 3.3$ gives
 $-0.3(y - 9) + 0.5y = 3.3 \Leftrightarrow 0.2y = 0.6 \Leftrightarrow y = 3$, and so $x = (3) - 9 = -6$. Hence, the solution is $(-6, 3)$.

$$14. \begin{cases} 4x + 2y = 16 \\ x - 5y = 70 \end{cases} \text{ Adding the first equation to } -4 \text{ times the second equation gives}$$

$$\begin{array}{r} 4x + 2y = 16 \\ -4x + 20y = -280 \\ \hline 22y = -264 \end{array} \Leftrightarrow y = -12.$$

So $4x + 2(-12) = 16 \Leftrightarrow x = 10$, and the solution is $(10, -12)$.

$$16. \begin{cases} -3x + 5y = 2 \\ 9x - 15y = 6 \end{cases} \text{ Adding 3 times the first equation to the second equation gives}$$

$$\begin{array}{r} -3x + 5y = 2 \\ 9x - 15y = 6 \\ -9x + 15y = 6 \\ \hline 9x - 15y = 6 \end{array}$$

$0 = 12$, which is false. Therefore, there is no solution to this system.