17. $\begin{cases} 2x - 6y = 10 \\ -3x + 9y = -15 \end{cases}$ Adding 3 times the first equation to 2 times the second equation gives

$\begin{aligned} 6x - 18y &= 30 \\ -6x + 18y &= -30 \\ \hline 0 &= 0 \end{aligned}$. Writing the equation in slope-intercept form, we have $2x - 6y = 10 \quad \Leftrightarrow$

$-6y = -2x + 10 \quad \Leftrightarrow \quad y = \frac{1}{3}x - \frac{5}{3}$, so a solution is any pair of the form $\left(x, \frac{1}{3}x - \frac{5}{3}\right)$, where x is any real number.

19. $\begin{cases} 6x + 4y = 12 \\ 9x + 6y = 18 \end{cases}$ Adding 3 times the first equation to -2 times the second equation gives

$\begin{aligned} 18x + 12y &= 36 \\ -18x - 12y &= -36 \\ \hline 0 &= 0 \end{aligned}$. Writing the equation in slope-intercept form, we have $6x + 4y = 12 \quad \Leftrightarrow$

$4y = -6x + 12 \quad \Leftrightarrow \quad y = -\frac{3}{2}x + 3$, so a solution is any pair of the form $\left(x, -\frac{3}{2}x + 3\right)$, where x is any real number.

21. $\begin{cases} 8s - 3t = -3 \\ 5s - 2t = -1 \end{cases}$. Adding 2 times the first equation to 3 times the second equation gives

$\begin{aligned} 16s - 6t &= -6 \\ 15s - 6t &= -3 \\ \hline s &= -3. \end{aligned}$ So $8(-3) - 3t = -3 \quad \Leftrightarrow \quad -24 - 3t = -3 \quad \Leftrightarrow \quad t = -7$. Thus, the solution is $(s, t) = (-3, -7)$.

23. $\begin{cases} \frac{1}{2}x + \frac{3}{5}y = 3 \\ \frac{5}{3}x + 2y = 10 \end{cases}$. Adding 10 times the first equation to -3 times the second equation gives

$\begin{aligned} 5x + 6y &= 30 \\ -5x - 6y &= -30 \\ \hline 0 &= 0 \end{aligned}$. Writing the equation in slope-intercept form, we have $\frac{1}{2}x + \frac{3}{5}y = 3 \quad \Leftrightarrow$

$\frac{3}{5}y = -\frac{1}{2}x + 3 \quad \Leftrightarrow \quad y = -\frac{5}{6}x + 5$, so a solution is any pair of the form $\left(x, -\frac{5}{6}x + 5\right)$, where x is any real number.

25. $\begin{cases} \dfrac{2x - 5}{3} + \dfrac{y - 1}{6} = \dfrac{1}{2} \\ \dfrac{x}{5} + \dfrac{3y - 6}{12} = 1 \end{cases}$. We multiply the first equation by 6 and the second equation by 60 gives

the system $\begin{cases} 4x - 10 + y - 1 = 3 \\ 12x + 15y - 30 = 60 \end{cases}$, which simplifies to $\begin{cases} 4x + y = 14 \\ 12x + 15y = 90 \end{cases}$. Then adding 3 times

the first equation to -1 times the second equation gives $\begin{aligned} 12x + 3y &= 42 \\ -12x - 15y &= -90 \\ \hline -12y &= -48 \end{aligned} \quad \Leftrightarrow \quad y = 4.$

So $4x + (4) = 14 \quad \Leftrightarrow \quad 4x = 10 \quad \Leftrightarrow \quad x = \frac{5}{2}$. Thus, the solution is $\left(\frac{5}{2}, 4\right)$.

27. $\begin{aligned} x - 2y &= 1 \\ 2x + 2y &= 1 \\ \hline 3x \phantom{{}+ 2y} &= 2 \end{aligned} \quad \Leftrightarrow \quad x = \frac{2}{3}.$

So $\left(\frac{2}{3}\right) - 2y = 1 \quad \Leftrightarrow \quad 2y = -\frac{1}{3} \quad \Leftrightarrow \quad y = -\frac{1}{6}$. Thus the solution is $\left(\frac{2}{3}, -\frac{1}{6}\right)$.