

Using the elimination method, solve the following pairs of simultaneous equations:

(a)  $10x - 3y = 24.5$   
 $3x - 5y = 13.5$

(b)  $6x + 5y = 10.5$   
 $5x - 3y = -2$

(c)  $\frac{x}{4} - \frac{3}{8}y = 3$   
 $\frac{5}{3}x - \frac{y}{2} = 12$

Using the substitution method, solve the following pairs of simultaneous equations:

(d)  $2y - 5x = 25$   
 $4x + 3y = 3$

(e)  $\frac{x+y}{3} = 3$   
 $\frac{3x+y}{5} = 1$

(f)  $\frac{x}{3} + \frac{y}{2} = 4$   
 $\frac{2}{3}x - \frac{y}{6} = 1$

(g) If  $x = -11$  and  $y = 5$  is the solution to the system

$$px + 5y = q$$

$$qx + 7y = p$$

Find the values of  $p$  and  $q$ .

(h) A drone flies in a straight line at a constant speed parallel to the ground. Its displacement from the starting point,  $d$  metres, is given by  $8s - 3d = -9$ , where  $s$  is the time in seconds after the drone starts moving. A person also starts to run at the same time that the drone starts to fly, and the person's position is given by  $-29s + 10d = 16$ . Find the displacement at which the drone is directly above the person.