

Exercise 10.3S

1 a Find three pairs of solutions for these equations.

i $2x + y = 11$ ii $6x + y = 27$

b Solve these simultaneous equations.

$2x + y = 11$ $6x + y = 27$

2 Solve these simultaneous equations.

a $4x + 4y = 16$ b $3x + 2y = 19$
 $x + 4y = 13$ $x + 2y = 9$

c $4m + 4n = 24$ d $3x + 2y = 16$
 $m + 2n = 8$ $2x + y = 9$

e $5x + 3y = 17$ f $4e + 3f = 13$
 $x + 6y = -2$ $3e + 5f = 18$

g $2m + 3n = 14$ h $2y + 3x = 5$
 $m = 14 - 5n$ $y = 7 - 3x$

3 Solve these simultaneous equations.

a $4x - 4y = 20$ b $x - 2y = 11$
 $x - 4y = 2$ $3x - 2y = 25$

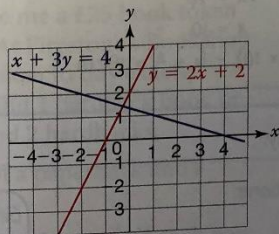
c $5p - 3q = 27$ d $a - 2b = 5$
 $5p - q = 29$ $4a - 5b = 23$

4 Solve these simultaneous equations.

a $4x + 2y = 26$ b $x + 3y = 13$
 $x - 2y = 4$ $3x - 3y = 15$

c $5p + 3q = 7$ d $3a + 2b = 9$
 $2p - q = 11$ $4a - 5b = 35$

5 Use the graphs to find approximate solutions for these simultaneous equations.



$x + 3y = 4$
 $y = 2x + 2$

6 By drawing graphs, find approximate solutions for these simultaneous equations.

a $x + 3y = 4$ b $x + 2y = 6$
 $y = 2x - 2$ $y = 3x + 1$

c $y = 3x - 1$ d $y = 3x - 7$
 $y = x - 2$ $x = y + 2$

*7 Solve these simultaneous equations.

a $\frac{x}{3} - \frac{y}{4} = \frac{3}{2}$ b $\frac{a}{2} + 3b = 1$
 $2x + y = 14$ $5a - 7b = 47$

c $p - \frac{2q}{3} = \frac{26}{3}$ d $\frac{5s}{6} + \frac{t}{4} = 8$
 $\frac{p}{4} + 3q - 1 = 0$ $\frac{2s}{5} + \frac{t}{10} = 4$

8 Solve these simultaneous equations, giving your answer to 2 decimal places where appropriate.

a $x + y = 8$ b $x + y = 9$
 $y = x^2$ $y = x^2 - 2$

c $x + 2y = 7$ d $3x + 2y = 8$
 $y = 2x^2$ $y = 2x^2$

e $x + 2y = 3$ f $x + 2y = 4$
 $x^2 + y^2 = 3$ $x^2 + y^2 = 4$

g $x^2 - y^2 = 2$ h $xy = 3$
 $x + 2y = 10$ $x + 2y = 8$

i $y = x^2 - 3x + 7$
 $y - 5x + 8 = 0$

j $x^2 + 3xy = 10$
 $x = 2y$

9 Explain why these simultaneous equations do not have a solution.

$x - y = 8$ $y = x^2 - 6$

10 a These simultaneous equations have one solution, find it.

$x^2 + y^2 = 5$ $y = 2x + 5$

b Explain why there is only one solution using graphs.

*11 How many solutions do these simultaneous equations have? Give your reason.

a $x - y = 2$ b $x + y = 5$
 $y = x^3$ $y = \frac{1}{x}$

12 The sum of the ages of Bob's grandparents is 135 years. The difference between their ages is 11.

What are the possible ages of Bob's grandparents?