

## Solving pairs of simultaneous equations

### Solve each pair of equations

$$\begin{aligned} 1) \quad & 4y + 4x + 4 = 0 \\ & -6x + 18 + 6y = 0 \end{aligned}$$

$$\begin{aligned} 2) \quad & 6 - 2x = -2y \\ & 6x = -6 - 6y \end{aligned}$$

$$\begin{aligned} 3) \quad & 4 - y + x = 0 \\ & 0 = -4x - 4y \end{aligned}$$

$$\begin{aligned} 4) \quad & 0 = -1 + \frac{1}{6}x + \frac{1}{4}y \\ & 4y + 1 = 3x \end{aligned}$$

$$\begin{aligned} 5) \quad & -3y = 2x + 7 \\ & -6x = 8y + 20 \end{aligned}$$

$$\begin{aligned} 6) \quad & -4x + 6 = 8y \\ & -x - 2y = -2 \end{aligned}$$

$$\begin{aligned} 7) \quad & -3y + 3x = -12 \\ & 4y - 8x = 20 \end{aligned}$$

$$\begin{aligned} 8) \quad & -\frac{1}{2}y = 1 - \frac{3}{8}x \\ & 0 = 6 - 4x + 3y \end{aligned}$$

$$\begin{aligned} 9) \quad & \frac{9}{4} + \frac{3}{4}x = -y \\ & 0 = 4x - 3y + 12 \end{aligned}$$

$$\begin{aligned} 10) \quad & -4 + 2y + x = 0 \\ & -12 = 6x - 6y \end{aligned}$$

$$\begin{aligned} 11) \quad & 3x = -2 - 4y \\ & -11 = -3y + 4x \end{aligned}$$

$$\begin{aligned} 12) \quad & 0 = -2y + 12 - 4x \\ & 3y = -9 + 3x \end{aligned}$$

$$\begin{aligned} 13) \quad & -12 - 4x = -2y \\ & -3y - 3x = 0 \end{aligned}$$

$$\begin{aligned} 14) \quad & y = 4 + \frac{3}{2}x \\ & -30 + 9y = 12x \end{aligned}$$

$$\begin{aligned} 15) \quad & 3y + 3x = -6 \\ & -6 - 4y = 2x \end{aligned}$$

$$\begin{aligned} 16) \quad & 4y - 3x = 8 \\ & -9y + 6x = -15 \end{aligned}$$

$$\begin{aligned} 17) \quad & 4y = 9 + 3x \\ & -6 - 3y = 2x \end{aligned}$$

$$\begin{aligned} 18) \quad & -3x = -6 + 3y \\ & -4x - 2y = -10 \end{aligned}$$

$$\begin{aligned} 19) \quad & 0 = -3x + 3y \\ & 6 = -4x - 2y \end{aligned}$$

$$\begin{aligned} 20) \quad & 0 = 2y + 6 + x \\ & 9 = 3y - 3x \end{aligned}$$

$$\begin{aligned} 21) \quad & -4y = 4 - 4x \\ & 3 + 3y = -3x \end{aligned}$$

$$\begin{aligned} 22) \quad & 2x = 3y + 5 \\ & 0 = -3x + 5 + 2y \end{aligned}$$

$$\begin{aligned} 23) \quad & -x + 2 = y \\ & -3y + 12 = -3x \end{aligned}$$

$$\begin{aligned} 24) \quad & -\frac{3}{5}x = 3 - \frac{3}{5}y \\ & 3x + 3y + 9 = 0 \end{aligned}$$

$$\begin{aligned} 25) \quad & 6x = 3y - 9 \\ & -6 = 4x - 2y \end{aligned}$$

$$\begin{aligned} 26) \quad & -3y = 9 + 3x \\ & 12 = 4x - 2y \end{aligned}$$

$$\begin{aligned} 27) \quad & 4y - 6 = 3x \\ & -4x = 8 + 3y \end{aligned}$$

$$\begin{aligned} 28) \quad & -1 = 3x - 2y \\ & -6 = 3y - 2x \end{aligned}$$

$$\begin{aligned} 29) \quad & 9x = -9y \\ & 2x + 12 = 2y \end{aligned}$$

$$\begin{aligned} 30) \quad & 0 = 12 + 3x + 2y \\ & 2x = -3y - 8 \end{aligned}$$

$$\begin{aligned} 31) \quad & 4 = 4y + 4x \\ & 3x = 9 + 3y \end{aligned}$$

$$\begin{aligned} 32) \quad & 0 = -4 - 2x - 2y \\ & 3x - 12 = 3y \end{aligned}$$

$$\begin{aligned} 33) \quad & 3x = -1 - 4y \\ & 15 - 6x = -9y \end{aligned}$$

$$\begin{aligned} 34) \quad & 8 = 4x - 2y \\ & -6 + 3y = -3x \end{aligned}$$

$$\begin{aligned} 35) \quad & -8y + 16 + 6x = 0 \\ & 0 = 15 - 9y + 6x \end{aligned}$$

$$\begin{aligned} 36) \quad & -x = -\frac{5}{2} + \frac{3}{4}y \\ & -8 = -2y - 3x \end{aligned}$$

$$\begin{aligned} 37) \quad & -2 - \frac{2}{3}y = -x \\ & 0 = 3y + 8 - 4x \end{aligned}$$

$$\begin{aligned} 38) \quad & 4y + 2x = 8 \\ & -3 = -y - x \end{aligned}$$

$$\begin{aligned} 39) \quad & -4x - 12 = 2y \\ & -1 = \frac{1}{3}x + \frac{1}{3}y \end{aligned}$$

$$\begin{aligned} 40) \quad & 2x - \frac{4}{3}y - \frac{2}{3} = 0 \\ & -4x + 7 = 3y \end{aligned}$$

$$\begin{aligned} 41) \quad & 1 + 3y - 6x = 0 \\ & -12 + 24x - 12y = 0 \end{aligned}$$

$$\begin{aligned} 42) \quad & 2x = 3y + 10 \\ & 0 = -2 - 4y - 3x \end{aligned}$$

$$\begin{aligned} 43) \quad & 3x + 6 = -3y \\ & 4 + 2y + 2x = 0 \end{aligned}$$

$$\begin{aligned} 44) \quad & -3x = 3y + 12 \\ & -2y = 4 - 2x \end{aligned}$$

$$45) \begin{aligned} -3x + 2y &= 9 \\ 0 &= 4 + 2y + \frac{4}{3}x \end{aligned}$$

$$47) \begin{aligned} -3x &= -6 - 4y \\ 8 - 4x &= -3y \end{aligned}$$

$$49) \begin{aligned} -4x &= 3y - 5 \\ 2y - 4 + 3x &= 0 \end{aligned}$$

$$51) \begin{aligned} 4 &= -3x + 4y \\ 0 &= 3y - 3 + 4x \end{aligned}$$

$$53) \begin{aligned} 7 &= -4y + 3x \\ 3y - 4x + 7 &= 0 \end{aligned}$$

$$55) \begin{aligned} 6x &= 8y - 6 \\ x &= -1 + \frac{4}{3}y \end{aligned}$$

$$57) \begin{aligned} 4 + \frac{3}{2}x &= y \\ 11 - 3y &= -4x \end{aligned}$$

$$59) \begin{aligned} 4y &= 2x + 10 \\ 0 &= 9 + 3x - 3y \end{aligned}$$

$$61) \begin{aligned} 0 &= -6 + 8y - 4x \\ 36y - 36 &= 18x \end{aligned}$$

$$63) \begin{aligned} -2x - 8 &= 3y \\ \frac{1}{4}x + \frac{1}{6}y &= -1 \end{aligned}$$

$$65) \begin{aligned} 6x - 4y &= -14 \\ 3y - 4 &= -2x \end{aligned}$$

$$46) \begin{aligned} 8 &= 6x + 8y \\ -2 + 3y + 2x &= 0 \end{aligned}$$

$$48) \begin{aligned} 0 &= -1 + \frac{1}{3}x - \frac{1}{4}y \\ -\frac{1}{4}y &= 1 - \frac{3}{8}x \end{aligned}$$

$$50) \begin{aligned} -2x - 6y &= -2 \\ -y &= -\frac{1}{3} + \frac{1}{3}x \end{aligned}$$

$$52) \begin{aligned} -12x &= 24y \\ x + 2y &= 0 \end{aligned}$$

$$54) \begin{aligned} -2x &= 3y + 6 \\ 2y &= -3x + 1 \end{aligned}$$

$$56) \begin{aligned} -3y &= 8 - 2x \\ -2y + 3x &= 12 \end{aligned}$$

$$58) \begin{aligned} 2y - 6 + 3x &= 0 \\ -1 &= -\frac{1}{2}x + \frac{3}{4}y \end{aligned}$$

$$60) \begin{aligned} x - 2y &= -3 \\ -3x &= 6 - 3y \end{aligned}$$

$$62) \begin{aligned} 0 &= 4x + 2y - 6 \\ x + y &= 2 \end{aligned}$$

$$64) \begin{aligned} -4x &= 2y + 8 \\ 6x &= -6 - 6y \end{aligned}$$

$$66) \begin{aligned} 3y &= -2x + 11 \\ -\frac{27}{4} &= -3y + \frac{9}{4}x \end{aligned}$$

$$67) \begin{aligned} -2 &= -2x - 2y \\ 2x + 4 &= 4y = 0 \end{aligned}$$

$$68) \begin{aligned} 0 &= 2x + 3y - 9 \\ -8y + 24 &= -6x \end{aligned}$$

$$69) \begin{aligned} -3y &= 3x \\ 12x &= -6y - 6 \end{aligned}$$

$$70) \begin{aligned} 4y &= 4x - 8 \\ -3y &= 3x \end{aligned}$$

$$71) \begin{aligned} -3 &= 6x - 9y \\ -2y &= -3x + 6 \end{aligned}$$

$$72) \begin{aligned} 0 &= 3 + 3x - 3y \\ 0 &= -4x - 4y + 12 \end{aligned}$$

$$73) \begin{aligned} -2y + 6 &= 3x \\ 8 - 4x - 3y &= 0 \end{aligned}$$

$$74) \begin{aligned} 3x &= 3y - 12 \\ -2y &= -8 - 2x \end{aligned}$$

$$75) \begin{aligned} -8y + 4x &= 8 \\ -12y - 12 &= -6x \end{aligned}$$

$$76) \begin{aligned} 5 + 6y &= 8x \\ 0 &= 9 + 9y - 12x \end{aligned}$$

$$77) \begin{aligned} 0 &= -4 - 4x - 2y \\ -3x - 6 &= 3y \end{aligned}$$

$$78) \begin{aligned} -9x - 9 &= 9y \\ -4x &= 8 + 8y \end{aligned}$$

$$79) \begin{aligned} -3y + 12 &= 4x \\ 3x &= -8 + 2y \end{aligned}$$

$$80) \begin{aligned} 3 - 3x &= 3y \\ -2y + 2 &= x \end{aligned}$$

$$81) \begin{aligned} 16x - 16y &= -20 \\ -12x - 12 + 12y &= 0 \end{aligned}$$

$$82) \begin{aligned} -4x + 4 &= -4y \\ 0 &= 3 + 3x + 3y \end{aligned}$$

$$83) \begin{aligned} 0 &= -7 + 3x - 2y \\ -2x + 8 + 3y &= 0 \end{aligned}$$

$$84) \begin{aligned} 0 &= 4y + 3x + 4 \\ \frac{4}{3}x &= -y - 1 \end{aligned}$$

$$85) \begin{aligned} 3x &= -4y \\ 0 &= -2x - 3y \end{aligned}$$

$$86) \begin{aligned} 3x + 3y &= -9 \\ -2x &= 6 + 2y \end{aligned}$$

$$87) \begin{aligned} 2x &= -12 + 4y \\ 3x - 3y + 12 &= 0 \end{aligned}$$

$$88) \begin{aligned} 2y + 4x &= 6 \\ 3y &= -3x + 3 \end{aligned}$$

$$89) \begin{aligned} -3x &= 5 + 4y \\ 3y + 2 &= -4x \end{aligned}$$

$$\begin{aligned} 90) \quad -3y &= -2x + 8 \\ -3x - 4y &= 5 \end{aligned}$$

$$\begin{aligned} 92) \quad -y &= -1 - \frac{3}{4}x \\ 9y &= 6 + 6x \end{aligned}$$

$$\begin{aligned} 94) \quad 0 &= -4x - 10 + 3y \\ -4y + 4 + 3x &= 0 \end{aligned}$$

$$\begin{aligned} 96) \quad 0 &= 4 + 2x - 4y \\ 3 &= 3x - 3y \end{aligned}$$

$$\begin{aligned} 98) \quad -12 - 3y - 3x &= 0 \\ 6x + 30 &= -12y \end{aligned}$$

$$\begin{aligned} 100) \quad -4x - 4 &= -6y \\ -4y + 6x &= -16 \end{aligned}$$

$$\begin{aligned} 91) \quad 3y &= -3x - 9 \\ 4 &= -4y - 2x \end{aligned}$$

$$\begin{aligned} 93) \quad 3 &= 3x - 3y \\ 24 + 8x &= -8y \end{aligned}$$

$$\begin{aligned} 95) \quad 0 &= 8 - 2x - 2y \\ -1 + \frac{1}{2}y &= \frac{1}{2}x \end{aligned}$$

$$\begin{aligned} 97) \quad -3y - 6 &= -4x \\ 10 + 4y &= 6x \end{aligned}$$

$$\begin{aligned} 99) \quad 0 &= -4y + 3x - 5 \\ -3y - 2 + 4x &= 0 \end{aligned}$$

## Answers to Solving pairs of simultaneous equations

- |                                  |                 |                                  |                 |
|----------------------------------|-----------------|----------------------------------|-----------------|
| 1) (1, -2)                       | 2) (1, -2)      | 3) (-2, 2)                       | 4) (3, 2)       |
| 5) (-2, -1)                      | 6) No solution  | 7) (-1, 3)                       | 8) (0, -2)      |
| 9) (-3, 0)                       | 10) (0, 2)      | 11) (-2, 1)                      | 12) (3, 0)      |
| 13) (-2, 2)                      | 14) (-4, -2)    | 15) (-1, -1)                     | 16) (-4, -1)    |
| 17) (-3, 0)                      | 18) (3, -1)     | 19) (-1, -1)                     | 20) (-4, -1)    |
| 21) (0, -1)                      | 22) (1, -1)     | 23) (-1, 3)                      | 24) (-4, 1)     |
| 25) Infinite number of solutions | 26) (1, -4)     | 27) (-2, 0)                      |                 |
| 28) (-3, -4)                     | 29) (-3, 3)     | 30) (-4, 0)                      | 31) (2, -1)     |
| 32) (1, -3)                      | 33) (1, -1)     | 34) (2, 0)                       | 35) (-4, -1)    |
| 36) (4, -2)                      | 37) (2, 0)      | 38) (2, 1)                       | 39) (-3, 0)     |
| 40) (1, 1)                       | 41) No solution | 42) (2, -2)                      |                 |
| 43) Infinite number of solutions | 44) (-1, -3)    | 45) (-3, 0)                      |                 |
| 46) (4, -2)                      | 47) (2, 0)      | 48) (0, -4)                      | 49) (2, -1)     |
| 50) Infinite number of solutions | 51) (0, 1)      | 52) Infinite number of solutions |                 |
| 53) (1, -1)                      | 54) (3, -4)     | 55) Infinite number of solutions |                 |
| 56) (4, 0)                       | 57) (-2, 1)     | 58) (2, 0)                       | 59) (-1, 2)     |
| 60) (-1, 1)                      | 61) No solution | 62) (1, 1)                       | 63) (-4, 0)     |
| 64) (-3, 2)                      | 65) (-1, 2)     | 66) (1, 3)                       | 67) (0, 1)      |
| 68) (0, 3)                       | 69) (-1, 1)     | 70) (1, -1)                      | 71) (4, 3)      |
| 72) (1, 2)                       | 73) (2, 0)      | 74) Infinite number of solutions |                 |
| 75) Infinite number of solutions | 76) No solution | 77) (0, -2)                      |                 |
| 78) (0, -1)                      | 79) (0, 4)      | 80) (0, 1)                       | 81) No solution |
| 82) (0, -1)                      | 83) (1, -2)     | 84) (0, -1)                      | 85) (0, 0)      |
| 86) Infinite number of solutions | 87) (-2, 2)     | 88) (2, -1)                      |                 |
| 89) (1, -2)                      | 90) (1, -2)     | 91) (-4, 1)                      | 92) (-4, -2)    |
| 93) (-1, -2)                     | 94) (-4, -2)    | 95) (1, 3)                       | 96) (4, 3)      |
| 97) (3, 2)                       | 98) (-3, -1)    | 99) (-1, -2)                     | 100) (-4, -2)   |