

Solve the simultaneous equations.

(These can be solved by only modifying one equation)

$$1) \begin{cases} 4x + y = 14 \\ 5x + 2y = 19 \end{cases} \quad 2) \begin{cases} 5m + 3n = 11 \\ 4m + 6n = 16 \end{cases} \quad 3) \begin{cases} 3x + 2y = 19 \\ 4x - y = 29 \end{cases}$$

$$4) \begin{cases} 5x - y = 8 \\ 7x + 4y = 22 \end{cases} \quad 5) \begin{cases} 4x + 3y = 25 \\ x + 5y = 19 \end{cases} \quad 6) \begin{cases} 8x - 3y = 30 \\ 3x + y = 7 \end{cases}$$

(These require one or both equations to be modified)

Be careful!

$$7) \begin{cases} 2x + 3y = 12 \\ 5x + 4y = 23 \end{cases} \quad 8) \begin{cases} 3x + 2y = 14 \\ 2x + 7y = 15 \end{cases} \quad 9) \begin{cases} y - x = -1 \\ 3x - y = 5 \end{cases}$$

$$10) \begin{cases} 3x - 2y = 21 \\ 4x + 3y = 11 \end{cases} \quad 11) \begin{cases} 7x + 5y = 32 \\ 3x + 4y = 23 \end{cases} \quad 12) \begin{cases} 10x + 5y = 2\frac{1}{2} \\ 7x - 2y = \frac{1}{10} \end{cases}$$

Solve these systems of three simultaneous equations algebraically

$$1) \begin{cases} x + y - z = 4 \\ x - 2y + 3z = -6 \\ 2x + 3y + z = 7 \end{cases} \quad 2) \begin{cases} x + y - z = 1 \\ 8x + 3y - 6z = 1 \\ -4x - y + 3z = 1 \end{cases}$$

There are four children in a family, two girls, Kate and Sally, and two boys, Tom and Ben.

- Tom is 2 years older than Ben.
- The combined ages of the two boys is equal to the combined ages of the two girls.
- Kate is twice as old as Sally.
- A year ago Tom was twice as old as Sally was then.
- How old are the children

Solve the simultaneous equations.

(These can be solved by only modifying one equation)

1) $x = 3, y = 2$ 2) $m = 1, n = 2$ 3) $x = 7, y = -1$

4) $x = 2, y = 2$ 5) $x = 4, y = 3$ 6) $x = 3, y = -2$

(These require one or both equations to be modified)

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7) $x = 3, y = 2$ 8) $x = 4, y = 1$ 9) $x = 2, y = 1$

10) $x = 5, y = -3$ 11) $x = 1, y = 5$ 12) $x = 0.1, y = 0.3$