

Cambridge IGCSE Mathematics – Simultaneous Linear Equations

Answer Key (Fully Verified)

1. From $(2x + y = 7) - (x + y = 4) \rightarrow x = 3$, then $y = 1$.
2. From $x + y = 5 \rightarrow y = 5 - x$; substitute: $3x - 2(5 - x) = 8 \rightarrow 5x = 18 \rightarrow x = 3.6$, $y = 1.4$.
3. Add $(4x + y = 11)$ and $(x - y = 1) \rightarrow 5x = 12 \rightarrow x = 2.4$; then $y = 11 - 4x = 1.4$.
4. From $x - y = 1 \rightarrow x = 1 + y$; substitute: $2(1 + y) + 3y = 12 \rightarrow 5y = 10 \rightarrow y = 2$, $x = 3$.
5. Add: $(5x - y) + (2x + y) = 9 + 8 \rightarrow 7x = 17 \rightarrow x = 17/7$; then $2x + y = 8 \rightarrow y = 22/7$.
6. Double $(2x - y = 1)$: $4x - 2y = 2$; add to $(3x + 2y = 11) \rightarrow 7x = 13 \rightarrow x = 13/7$; then $2x - y = 1 \rightarrow y = 19/7$.
7. From $x - y = 2 \rightarrow y = x - 2$; substitute: $(x/2) + (x - 2) = 4 \rightarrow (3x/2) = 6 \rightarrow x = 4$, $y = 2$.
8. Triple $(2x + y = 7)$: $6x + 3y = 21$; add to $(4x - 3y = 5) \rightarrow 10x = 26 \rightarrow x = 2.6$; then $y = 1.8$.
9. Double $(5x + y = 19)$: $10x + 2y = 38$; add to $(3x - 2y = 4) \rightarrow 13x = 42 \rightarrow x = 42/13$; then $y = 37/13$.
10. Double $(2x + y = 7)$: $4x + 2y = 14$; add to $(3x - 2y = 4) \rightarrow 7x = 18 \rightarrow x = 18/7$; then $y = 13/7$.
11. Let smaller = x , larger = y . $x + y = 24$, $2x = y - 6 \rightarrow y = 2x + 6 \rightarrow x + 2x + 6 = 24 \rightarrow x = 6$, $y = 18$.
12. Let smaller = x , larger = y . $x + y = 35$, $3x = 2y \rightarrow y = (3x)/2 \rightarrow x + (3x)/2 = 35 \rightarrow x = 14$, $y = 21$.