Simultaneous equations by graphs, substitution and elimination

6 questions | 14 marks

Equivalent correct methods earn the corresponding marks.

1. Solve $x + y = 9$ and $x - y = 3$. [2 marks]

Add the equations to get $2x = 12$; then $y = 3$.

Answer: $(6, 3)$

2. Solve $y = 3x - 1$ and $y = x + 5$. [2 marks]

$3x - 1 = x + 5$ gives $x = 3$, then $y = 8$.

Answer: $(3, 8)$

3. Solve $2x + y = 11$ and $x + 2y = 10$. [2 marks]

Eliminate y: $4x + 2y = 22$ minus $x + 2y = 10$ gives $3x = 12$.

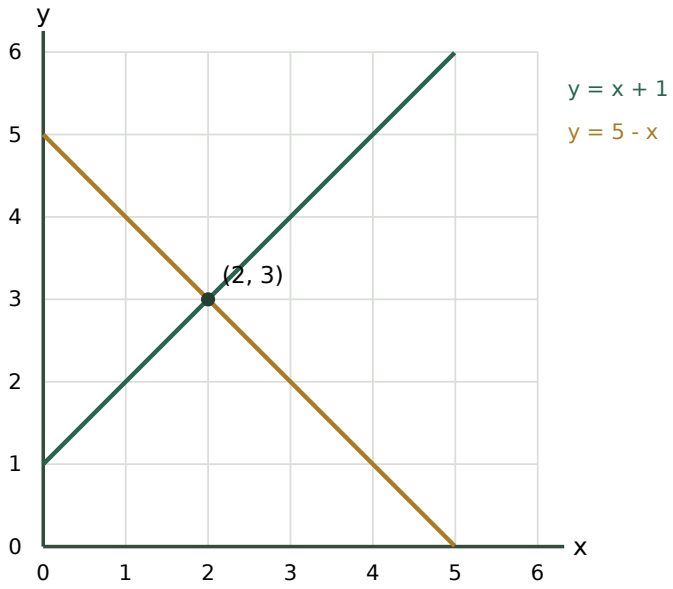
Answer: $(4, 3)$

4. Solve $3x - 2y = 4$ and $x + y = 8$. [2 marks]

Use $y = 8 - x$: $3x - 2(8 - x) = 4$, so $5x = 20$.

Answer: $(4, 4)$

5. On the supplied grid, draw $y = x + 1$ and $y = 5 - x$, then state their intersection. [3 marks]



Both lines give $y = 3$ at $x = 2$.

Answer: $(2, 3)$

6. Three adult tickets and two child tickets cost 46 dollars. One adult ticket and two child tickets cost 26 dollars. Find both prices. [3 marks]

Subtract the equations to obtain two adult tickets costing 20 dollars.

Substitute the adult price into the second total.

Answer: Adult: 10 dollars; child: 8 dollars.