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 $3x=12$.

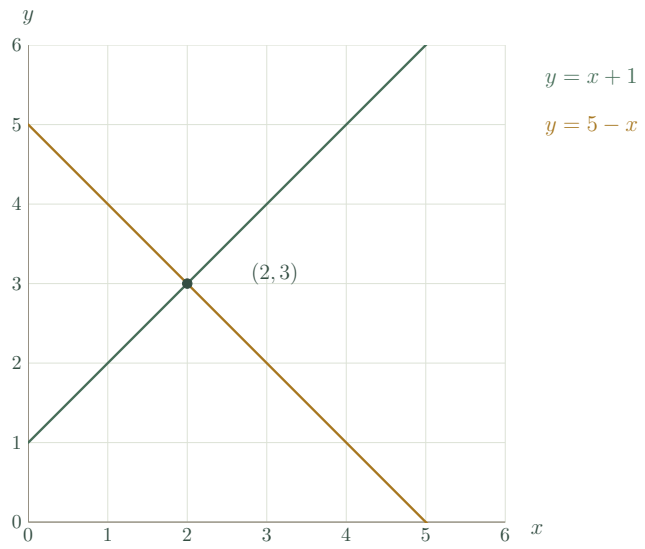
Answer: $(4, 3)$

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.