# Simultaneous equations: linear and quadratic

**1**

Solve

$y = x^2 - 5$

$y = x + 1$

put them equal, then = 0

$x^2 - x - 6 = 0$

factorise

each x, then its y from the line

$x =$ $y =$

$x =$ $y =$

**Answer** _____

**2**

Solve

$y = x^2 + 2x$

$y = 4x + 3$

put them equal, then = 0

factorise

each x, then its y from the line

$x =$ $y =$

$x =$ $y =$

**Answer** _____

**3**

Solve

$y = x^2 - 3x + 1$

$y = x - 2$

put them equal, then = 0

factorise

each x, then its y from the line

$x =$ $y =$

$x =$ $y =$

**Answer** _____

**4**

Solve

$y = x^2 + x - 7$

$y = 2x + 5$

$x =$ $y =$

$x =$ $y =$

**Answer** _____

**5**

Solve

$x^2 + y^2 = 5$

$y = x + 1$

$x^2 + (x + 1)^2 = 5$

$x =$ $y =$

$x =$ $y =$

**Answer** _____

**6**

Solve

$x^2 + y^2 = 29$

$y = x + 3$

**Answer** _____

**7**

Nadia solves $y = x^2 - 2x - 4$ and $y = 2x + 1$. She writes (5, −1) and (−1, 11).
Check her answers in the line.
Explain her mistake and correct it.

**Answer** _____

**8**

Show that the line $y = 4x$ touches the curve $y = x^2 + 4$ at one point only, and find that point.

**Answer** _____

# Simultaneous equations: linear and quadratic *further practice*

**9**

Solve $y = x^2 - 6$ and $y = -x$

**Answer** _____

**10**

Solve $y = x^2 + 3x$ and $y = 5x$

**Answer** _____

**11**

Solve $x^2 + y^2 = 34$ and $y = x + 2$

**Answer** _____

**12**

Solve $y = x^2 - 2x - 1$ and $x + y = 5$

**Answer** _____

**13**

On a map of a park, a path follows the line $y = x + 6$ and a stream follows the curve $y = x^2 - 2x + 2$.
Find the coordinates of the points where the path crosses the stream.

**Answer** _____

**14**

The line $y = 2x + k$ meets the curve $y = x^2 + 3$ at the point (3, 12). Find $k$ and the other point where they meet.

**Answer** _____

**15**

Solve $x^2 + y^2 = 10$ and $y = 2x + 5$

**Answer** _____

**16**

The line $y = k$ touches the curve $y = x^2 - 6x + 11$ at one point only.
Find $k$ and the point.
Explain how you know.

**Answer** _____