

3.2) Quadratic simultaneous equations

Worked example

Solve:

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

$$y = 2x + 4$$

Your turn

Solve:

$$y = x^2 + 7x - 2$$

$$y = 2x + 4$$

$$x = 1, y = 6$$

$$x = -6, y = -8$$

Worked example

Solve:

$$\begin{aligned}x + y &= 3 \\x^2 + y^2 &= 9\end{aligned}$$

Your turn

Solve:

$$\begin{aligned}x^2 + y^2 &= 4 \\x + y &= 2 \\x = 0, y = 2 \\x = 2, y = 0\end{aligned}$$

Worked example

Solve:

$$\begin{aligned}y &= 2x + 1 \\x^2 + y^2 &= 29\end{aligned}$$

Your turn

Solve:

$$\begin{aligned}y &= 3x - 1 \\x^2 + y^2 &= 73 \\x &= 3, y = 8 \\x &= -\frac{12}{5}, y = -\frac{41}{5}\end{aligned}$$

Worked example

Solve:

$$5x^2 + y^2 = 49$$

$$y = x - 1$$

Your turn

Solve:

$$3x^2 + y^2 = 21$$

$$y = x + 1$$

$$x = -\frac{5}{2}, y = -\frac{3}{2}$$

$$x = 2, y = 3$$

Worked example

Solve:

$$3y^2 - 2x^2 = 10$$

$$y + x = 13$$

Your turn

Solve:

$$4y^2 - 3x^2 = -12$$

$$y + x = 7$$

$$x = 4, y = 3$$

$$x = 52, y = -45$$

Worked example

Solve:

$$3y^2 - 2x^2 = 19$$

$$2y + 3x = 15$$

Your turn

Solve:

$$2y^2 - 3x^2 = 38$$

$$3y + 2x = 19$$

$$x = 2, y = 5$$

$$x = -10, y = 13$$

Worked example

Solve:

$$xy = 12$$

$$y = x + 4$$

$$xy = 12$$

$$x = y - 2$$

Your turn

Solve:

$$xy = 12$$

$$y = x + 11$$

$$x = 1, y = 12$$

$$x = -12, y = -1$$