3.5 Perpendicular bisector

Checklist

What you should know

By the end of this subtopic you should be able to:

- find the coordinates of the midpoint of a line segment with endpoints (x_1, y_1) and (x_2, y_2) using

$$\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$$

- find the gradient of a line: $m = \frac{y_2 - y_1}{x_2 - x_1}$
- use the equations of a straight line:

$$y = mx + c \text{ , } ax + by + d = 0 \text{ and } y - y_1 = m(x - x_1)$$

to find the gradient of a perpendicular bisector using

$$m_{\text{segment}} \times m_{\text{perpendicular bisector}} = -1$$

- put all this together to find the equation of a perpendicular bisector of a line segment with endpoints (x_1, y_1) and (x_2, y_2) .