2.1 Straight lines

Checklist

What you should know

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

- calculate the gradient between points $\mathrm{A}\,(x_1, y_1)$ and $\mathrm{B}\,(x_2, y_2)$ using the formula $m = \frac{y_2 - y_1}{x_2 - x_1}$
- find the equation of a line in the gradient—intercept form $y = mx + c$
- find the equation of horizontal lines of the form $y = a$
- find the equation of vertical lines of the form $x = a$
- find the equation of a line in the general form $ax + by + c = 0$, where $a,\ b$ and c are integers
- find the equation of a line in the gradient-point form $y - y_1 = m\,(x - x_1)$, where $\mathrm{A}\,(x_1, y_1)$ is point on the line and m is the gradient
- find the equation of a line that is parallel to a given line, using the fact that parallel lines have equal gradients
- find the equation of a line l_1 that is perpendicular to a line l_2, using the fact that the gradients of perpendicular lines are negative reciprocals of each other
  ($m_1 \times m_2 = -1$).