AQA Level 2 Further mathematics Coordinate geometry

Section 1: Points and straight lines

Crucial points

1. **Draw a diagram**
   In most questions involving coordinate geometry, it is helpful to draw a sketch diagram. It does not need to be accurate, but it will help to give you a rough idea of the answer you might expect.

2. **Make sure you understand the conditions on the gradients of lines for the lines to be parallel or perpendicular.**
   If two lines have gradients m_1 *and* m_2 *then:*
   - the lines are parallel if $m_1 = m_2$.
   - the lines are perpendicular if $m_1 m_2 = -1$ (i.e. if $= m_2 = -\frac{1}{m_1}$).

3. **Make sure you understand and can remember how to calculate the distance between two points**
   The distance, d, between two points, (x_1, y_1) and (x_2, y_2) is given by

   $$d = \sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2}$$

   This is just from applying Pythagoras's theorem

4. **Make sure you understand and can remember how to calculate the midpoint of the line or other point between two points.**
   The coordinates of the midpoint, M, of the line joining (x_1, y_1) and (x_2, y_2) are given by

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