# OCR Additional Maths Exam Questions - Coordinate Geometry

**3** A is the point (1, 5) and C is the point $(3, p)$.

**(i)** Find the equation of the line through A which is parallel to the line $2x + 5y = 7$. **[2]**

**(ii)** This line also passes through the point C. Find the value of $p$. **[2]**

**5** The coordinates of the points A, B and C are (−2, 1), (5, 2) and (4, 9) respectively.

**(a)** Find the coordinates of the midpoint, M, of the line AC. **[1]**

**(b)** Show that BM is perpendicular to AC. **[3]**

**(c)** **(i)** Use the result of part **(b)** to state the mathematical name of the triangle ABC. **[1]**

**(ii)** Prove this by another method. **[2]**

**1** **(i)** Find the gradient of the line, L, whose equation is $3x + 2y = 7$. **[2]**

**(ii)** Find the equation of the line which is perpendicular to L and which passes through the point (3, 1). **[3]**

**7** The points A and B have coordinates (3, 7) and (5, 11) respectively.

**(i)** Find the exact length of AB. **[2]**

**(ii)** Find the equation of the circle with diameter AB. **[3]**

**8** Four points have coordinates A(−5, −1), B(0, 4), C(7, 3) and D(2, −2).

**(i)** Using gradients of lines, prove that ABCD is a parallelogram. **[2]**

**(ii)** Using lengths of lines, prove further that ABCD is a rhombus. **[2]**

**(iii)** Prove that ABCD is not a square. **[2]**

**1** Find the equation of the line which is perpendicular to the line $2x + 3y = 5$ and which passes through the point (3, 4). **[3]**

**4** **(i)** Find the distance between the points $(2, 3)$ and $(7, 9)$. [2]

**(ii)** Hence find the equation of the circle with centre $(2, 3)$ and passing through the point $(7, 9)$. [2]

**7** **(i)** Show that the two lines whose equations are given below are parallel.

$$y = 4 - 2x$$
$$4x + 2y = 5$$

[2]

**(ii)** Find the equation of the line which is perpendicular to these two lines and which passes through the point $(1, 6)$. [3]

**9** The points A, B and C have coordinates $(-1, 1)$, $(5, 8)$ and $(8, 3)$ respectively.

**(i)** Show that AC = AB. [2]

**(ii)** Write down the coordinates of M, the midpoint of BC. [1]

**(iii)** Show that the lines BC and AM are perpendicular. [2]

**(iv)** Find the equation of the line AM. [2]

**2** The points A and B have coordinates (0, 8) and (6, 0) respectively.

**(i)** Find the equation of the line AB. [3]

**(ii)** Find the equation of the line perpendicular to AB through its midpoint. [4]