6 The vertices of triangle ABC are $A(-3, 1)$, $B(5, 0)$ and $C(9, 7)$.

(a) Show that $AB = BC$. [2]

(b) Show that angle ABC is **not** a right angle. [2]

(c) Find the coordinates of the midpoint of AC. [1]

(d) Determine the equation of the line of symmetry of the triangle, giving your answer in the form $px + qy = r$, where p, q and r are integers to be determined. [2]

(e) Write down an equation of the circle with centre A which passes through B. [2]

This circle intersects the line of symmetry of the triangle at B and at a second point.

(f) Find the coordinates of this second point. [1]