

8 A circle with centre C has equation $x^2 + y^2 - 6x - 16y + 48 = 0$.

(a) Find the coordinates of C . **[2]**

A line has equation $y = x - 2$ and intersects the circle at the points A and B . The midpoints of AC and BC are A' and B' respectively.

(b) Determine the exact distance $A'B'$. **[8]**