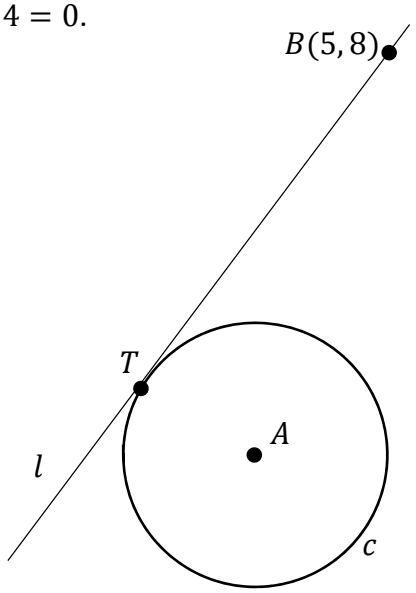
Question 2 **(25 marks)**

(a) The circle c has equation $x^2 + y^2 - 4x + 2y - 4 = 0$.
The point A is the centre of the circle.
The line l is a tangent to c at the point T,
as shown in the diagram.
The point $B(5, 8)$ is on l.
Find $|BT|$.



(b) Two circles, c_1 and c_2, have their centres on the x-axis. Each circle has a radius of 5 units. The point $(1, 4)$ lies on each circle. Find the equation of c_1 and the equation of c_2.

c_1:

c_2: