4. Circles $C_1$ and $C_2$ have equations $(x+5)^2 + (y-6)^2 = 9$ and $x^2 + y^2 - 6x - 16 = 0$ respectively.

(a) Write down the centres and radii of $C_1$ and $C_2$.

(b) Show that $C_1$ and $C_2$ do not intersect.

Answers

(a) $C_1 (-5, 6) \quad r = 3 \quad C_2 (3, 0) \quad r = 5$

(b) calculate the distance between the centres

calculate the sum of the radii

interpret significance of calculations

\begin{align*}
\text{\hspace{1cm}} & 10 \\
\text{\hspace{1cm}} & 8 \\
\text{\hspace{1cm}} & 8 < 10 \therefore the circles do not intersect
\end{align*}