Question 4: Find a polar representation for the curve whose Cartesian equation is $x^2 + (y - 2)^2 = 4$.

1. Expand $x^2 + (y - 2)^2 - 4 = 0$.

2. In the expression found above, replace $x^2 + y^2$ by $r$ and $y = r \sin \theta$.

\[
\begin{align*}
  x^2 + y^2 - 4y + 4 & = 4 \\
  r^2 - 4rsin \theta &= 0 \\
  r^2 &= 4rsin \theta \\
  r &= 4 \sin \theta 
\end{align*}
\]