

Throughout this question the use of a calculator is not permitted.

The polynomial $z^4 + 3z^2 + 6z + 10$ is denoted by $p(z)$. The complex number $-1 + i$ is denoted by u .

(i) Showing all your working, verify that u is a root of the equation $p(z) = 0$. [3]

(ii) Find the other three roots of the equation $p(z) = 0$. [7]