

1. $f(z) = z^3 + pz^2 + qz - 15$

where p and q are real constants.

Given that the equation $f(z) = 0$ has roots

$$\alpha, \frac{5}{\alpha} \text{ and } \left(\alpha + \frac{5}{\alpha} - 1 \right)$$

(a) solve completely the equation $f(z) = 0$

(5)

(b) Hence find the value of p .

(2)