

4 **(a)** Show that the equation $x^2 + kx - k^2 = 0$ has real roots for all real values of k . **[2]**

(b) Show that the roots of the equation $x^2 + kx - k^2 = 0$ are $\left(\frac{-1 \pm \sqrt{5}}{2}\right)k$. **[2]**