Question 7 **(5 marks)**

Consider the quartic polynomial $R(z) = z^4 - 6z^3 + 17z^2 - 22z + 14$ and $P(z) = z^2 - 2z + 2$ where $R(z) = P(z)(z^2 + az + b)$.

(a) Show that $(z - 1 - i)$ is a factor of $P(z)$. (2 marks)

(b) Solve the equation $R(z) = 0$. (3 marks)