5 The polynomial $p(x)$ is defined by

$$p(x) = ax^3 + bx^2 - ax - 24,$$

where a and b are constants. It is given that $(2x-3)$ is a factor of $p(x)$ and that the remainder is -15 when $p(x)$ is divided by $(x+1)$.

(a) Find the values of a and b. [4]

(b) Hence factorise $p(x)$ completely. [3]

(c) Hence solve the equation $p(3\operatorname{cosec}\theta) = 0$ for $90° < \theta < 270°$. [2]