

**8** A curve has equation  $y = x^3 + 3x^2 - 9x + k$ , where  $k$  is a constant.

(i) Write down an expression for  $\frac{dy}{dx}$ . [2]

(ii) Find the  $x$ -coordinates of the two stationary points on the curve. [2]

(iii) Hence find the two values of  $k$  for which the curve has a stationary point on the  $x$ -axis. [3]