

9 **(a)** Write the expression $\frac{1}{x^2}\left(3 + x^{\frac{5}{2}}\right)$ in the form $3x^p + x^q$. **[1]**

(b) A curve has gradient function $\frac{dy}{dx} = \frac{1}{x^2}\left(3 + x^{\frac{5}{2}}\right)$. The curve passes through the point $(1, -2)$.

Determine the equation of the curve. **[4]**