

STEP II, 2009, Q4

- 4 The polynomial $p(x)$ is of degree 9 and $p(x) - 1$ is exactly divisible by $(x - 1)^5$.
- (i) Find the value of $p(1)$.
 - (ii) Show that $p'(x)$ is exactly divisible by $(x - 1)^4$.
 - (iii) Given also that $p(x) + 1$ is exactly divisible by $(x + 1)^5$, find $p(x)$.



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