10 The polynomial $\mathrm{p}(x) = 6x^3 + ax^2 + bx + 2$, where a and b are integers, has a factor of $x - 2$.

(a) Given that $\mathrm{p}(1) = -2\mathrm{p}(0)$, find the value of a and of b. [4]

(b) Using your values of a and b,

(i) find the remainder when $\mathrm{p}(x)$ is divided by $2x - 1$, [2]

(ii) factorise $\mathrm{p}(x)$. [2]