The polynomial p(x) is defined by

$$p(x) = 2x^3 + 5x^2 + ax + 2a,$$

where a is an integer.

(a) Find, in terms of x and a, the quotient when p(x) is divided by $(x + 2)$, and show that the remainder is 4. [3]

....

....

....

....

....

....

....

....

....

....

....

....

(b) It is given that $\displaystyle\int_{-1}^{1} \frac{p(x)}{x + 2}\, dx = \frac{22}{3} + \ln b$, where b is an integer.

Find the values of a and b. [6]

....

....

....

....

....

....

....p(x) = 2x^3 + 5x^2 + ax + 2a,..