Challenge Problem for October 1, 2008

1. Suppose $f(x) = c_3 x^3 + c_2 x^2 + c_1 x + c_0$ (i.e. any cubic function). Show that S_2 gives the exact value of $\int_0^2 f(x)\, dx$.

    Note: The exact same argument works for $\int_a^b f(x)\, dx$ but the algebra is a little more annoying. You can do the more general one for extra credit if you like.