General Mathematics and Computational Science I

Exercise 17

November 15, 2007

1. Show that
$$\sum_{i=1}^{n} i\,(-1)^{n-i} = \frac{2n+1-(-1)^n}{4}\,.$$

2. Solve the difference equation
$$x_{n+1} = -x_n + (n+1)\,.$$

3. A loan of L Euros is to be amortized by equal monthly payments. The yearly interest rate is r, compounded monthly. Derive a formula for the monthly payment required to pay off the loan in T years.