# Algebra – Tutorial week 5

**T5.1.**  (a)  Convert the binary number

$$10\,1011\,0011\,0010\,1110$$

into a hexadecimal number, that is, into base 16.
 (b)  Now convert the same number into a decimal number, that is, into base 10.

**T5.2.** Expand the polynomial $x^4 + x^3 + x^2 + x + 1$ into powers of $x - 1$. (That is, write the polynomial in the form $\cdots + c_2(x-1)^2 + c_1(x-1) + c_0$, computing those coefficients.)
 *Note:* Use the iterated Ruffini's rule as learnt in the lectures, not other means.

**T5.3\*.** Are the coefficients found in the answer to Question 5.2 familiar to you? Can you explain why?
 *Hint:* Write down a portion of Pascal's triangle (several rows).