Homework (due Friday 6th)

Extra credits will be offered to the students who will present their correct solutions on the board.

1. Using **polar form** only compute the followings:

   (a)
   $$(1+i)\cdot(-1+i)^4$$

   (b)
   $$(4-4i)(4+4i)i - i(1+i)$$

   (c)
   $$\frac{5\left(\frac{1}{2}+i\frac{\sqrt{3}}{2}\right)^{\frac{3}{2}}}{\left(\frac{1}{2}-i\frac{\sqrt{3}}{2}\right)}$$

2. (a) Find all 4th roots of 1
   (b) Find all 4th roots of -1
   (c) Find all 6th roots of $3i$

3. Solve the following equations in the complex number set (using the nth root theorem).

   (a) $x^3+1=0$
   (b) $x^7+(1-i)=0$
   (c) $x^5=\sqrt{-2}$