PHYSICS 301
1st HOMEWORK
Dr. V. Lempesis

Hand in: Tuesday 24th of February 2015

Student Name : _____

Student ID: _____

1. For two complex numbers $z_1 = x_1 + iy_1$ ($z_1 \neq 0$) find the number $1/z_1^2$.

2. You are given that $z = -4\sqrt{2} - 4\sqrt{2}i$. Find satisfy the equation
   $z^2 - 2z + 2 = 0$.

3. What geometrical object is represented by the equation $|z + 3 - i| = |z + 2i|$?

4. Express the following complex numbers in exponential form:
   $-2 + 2\sqrt{3}i$, $5 - 5i$.

5. Calculate the quantity: $\left(\dfrac{1+\sqrt{3}i}{\sqrt{3}-i}\right)^4$.