PHYSICS 301
2nd HOMEWORK
Dr. V. Lempesis

Hand in: Sunday 9th of March 2014

Student Name: _____

Student ID: _____

1. Find the derivative of the complex function $f(z) = z^3$.

2. Show that $\dfrac{d}{dz}\cos z = -\sin z$.

3. Find the derivative of the function $\sin^3\left(z^2 - 6i\right)$

4. The function $f(z) = e^{z^2}$ is analytic. Verify the Cauchy – Riemann conditions.

5. Using the rules of differentiation find the derivative of the function
   $f(z) = (2z - i)/(z + 2i)$.