Assignment 2

MA06 Complex Analysis Deadline 11:59 AM, 20181211

1. Evaluate the given complex function $f(z) = z^2\bar{z} - 2i$ at the indicated points.
   (a) $2i$
   (b) $1 + i$
   (c) $3 - 2i$
2. Find the real and imaginary parts u and v of the given complex function $f(z) = 6z - 5 + 9i$ as functions of x and y. (Hint: Example 2.1.2)
3. Proceed as in Example 2.2.1 in Lecture 2 to find the image S' of the set S under the given complex mapping $w = f(z) = \bar{z}$, where S is the line $x = y$.
4. Use Theorem 2.2 and the basic limits (2.6.15) and (2.6.16) to compute the given complex limit $\lim_{z \to e^{i\pi/4}}(z + \frac{1}{z})$.
5. Show that the function f is continuous at the given point.
   $f(z) = z^2 - iz + 3 - 2i$; $z_0 = 2 - i$
   (Hint: Example 2.6.5)

Notice: Please write Your Name and Student ID when you submit.