Assignment 7

MA06 Complex Analysis Deadline 11:59 AM, 20190111

1. Evaluate $\oint_C f(z)dz$, where f is the given function and C is the unit circle $|z| = 1$. (Hint: Theorem 5.4, Example 5.3.1, Example 5.3.2.)
   (a) $f(z) = z^3 - 1 + 3i$
   (b) $f(z) = z^2 + \frac{1}{z-4}$
2. Evaluate the given integral along the indicated closed contour C.
   (a) $\oint_C \left(z + \frac{1}{z}\right)dz;\ |z| = 2$
   (b) $\oint_C \left(\frac{-3z+2}{z^2-8z+12}\right)dz;\ |z-5| = 2$
3. *Use Theorem 5.7 to evaluate the given integral $\int_0^{3+i} z^2 dz$. Write the answer in the form $a + ib$.

Notice 1: The question marked with * is an optional question.
Notice 2: Please write Your Name and Student ID when you submit.