Assignment 13

1. Use Equation (6.5.1), (6.5.2), or (6.5.4) to find the residue at each pole of the given function.

   (a) $f(z) = \frac{z}{z^2+16}$

   (b) $f(z) = \frac{1}{z^4+z^3-2z^2}$

2. Use Cauchy's residue theorem, where appropriate, to evaluate the given integral $\oint_C \frac{1}{(z-1)(z+2)^2} dz$ along the indicated contours.

   (a) $|z| = \frac{1}{2}$

   (b) $|z| = \frac{3}{2}$

3. Use Cauchy's residue theorem to evaluate the given integral $\oint_C \frac{1}{z^2+4z+13} dz$ along the indicated contour $C : |z - 3i| = 3$.

   Notice:
   Please write your Email title as "A{Assignment Number}-{Your Student ID}-{Your Name}".