Assignment 12

MA06 Complex Analysis Deadline: 17:00, Monday, Feb 5, 2024

1. Determine the zeros and their order for the given function.
   (a) $f(z) = (z + 2 - i)^2$
   (b) $f(z) = e^{2z} - e^z$
2. Determine the order of the poles for the given function.
   $f(z) = \frac{3z-1}{z^2+2z+5}$
3. Use an appropriate Laurent series to find the indicated residue.
   (a) $f(z) = \frac{2}{(z-1)(z+4)}$; $\mathrm{Res}(f(z), 1)$
   (b) $f(z) = \frac{4z-6}{z(2-z)}$; $\mathrm{Res}(f(z), 0)$

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