University of Crete - Department of Mathematics and Applied Mathematics Problems No $15\,$

All curves are positively oriented unless otherwise noted.

1. Find a few terms of the Laurent series of the function

$$\frac{e^{1/z}}{z^2-1},$$

around 0, and in all different annuli where this is defined.

2. Find the Laurent series of the function

$$\frac{z+1}{z(z-4)^3}$$

in the annulus 0 < |z - 4| < 4.