

# Homework 6

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## 1

a)  $f(z)$  needs to include:

1)  $15e^{1/z}$

$e^{1/z} = 1 + 1/z + 1/(2!z^2) + 1/(3!z^3) + \dots$  has infinite terms with negative powers, making it an essential singularity. The residue is 1 because of the coefficient of  $1/z$ . To get a residue of 15, we can just multiply the entire thing by 15.

2)  $\frac{16}{z-i}$