

Homework No. 07 (Fall 2018)

PHYS 500A: Mathematical Methods

Due date: Tuesday, 2018 Oct 23, 4.00pm

1. **(20 points.)** Find the Laurent series for the complex function

$$f(z) = \frac{1}{(z+2)(z-1)} \tag{1}$$

about $z = 1$.

2. **(20 points.)** Evaluate the integral

$$I(\lambda) = \frac{1}{\pi} \int_0^\infty \frac{x^{\frac{1}{3}} dx}{1 + 2x \cos \lambda + x^2}. \tag{2}$$