



AUBURN UNIVERSITY

SAMUEL GINN
COLLEGE OF ENGINEERING

AEROSPACE

AERO 4970/7970

**Advanced Perturbation Methods
Padé Approximations**

SET XI

1. Find an appropriate Padé Approximation for

$$y = \cos(\sqrt{x}) \quad (1)$$

Compare the result to the Taylor series containing an equivalent polynomial order.

2. Find an appropriate Padé Approximation for

$$y = \tanh(x) \quad (2)$$

Compare the result to the Taylor series containing an equivalent polynomial order.

3. Find an appropriate Padé Approximation for

$$y = \frac{1}{\sqrt{1+x}} \quad (3)$$

Compare the result to the Taylor series containing an equivalent polynomial order.