

Hwmk 17

Math 528 Summer Session 1

Due 6/18 (Friday at 11:59 pm)

1 S.L. on the D.L.

Problem 12 page 503

- (a) Find the eigenvalues and eigenfunctions.
- (b) Use problem 6 to help you rewrite the problem as a Sturm-Liouville problem.
- (c) Verify orthogonality.

2 Taylor Series is So Cal 1

Suppose you have the function $f(x) = \cos(\pi x)$.

- (a) Represent the function using Legendre polynomials P_0, P_1, \dots, P_n up to $n=4$ (the formula for coefficients is on page 505).
- (b) What is the difference in the value of the approximation versus the actual value of the function at $x = 1$?