MPP Calculus Problem Set 4

Due Wednesday, September 4.

It might appear that I have assigned for you many questions, but most of the problems are solvable in less than 30 seconds. In any case, math requires that you do a lot of practice.

1. Infinite series

• Spivak Chapter 23: 1 (iv), (vii), (ix), (xiii), (xv), (xvi), (xvii).

• Find the sum of each of the following series:

1. $\sum 3^{-n}$

2. $\sum \frac{1}{n^p} - \frac{1}{(n+1)^p}$ for $p > 0$

3. $\sum \frac{1}{n(n+3)}$

4. $\sum \frac{1}{(4n-3)(4n+1)}$

2. Matrix algebra

2.1. Chiang, Chapter 4:

• Exercise 4.2: 1, 2, 4 (a, c), 5 (a, c, e), 6 (b, d).

• Exercise 4.3: 1 (a, c, e), 3, 5 (b, d, f), 6, 7.

• Exercise 4.4: 1 (a), 3.

• Exercise 4.5: 1 (a, c), 2 (b, d), 3 (a, c).

• Exercise 4.6: 1, 2, 4, 6 (b).

2.2. Chiang, Chapter 5:

• Exercise 5.1: 1 (a, c, e, g), 2 (a, c) [you will need to read the textbook for 1 and 2], 3.

• Exercise 5.2: 1 (a, c, e).

• Exercise 5.3: 1, 2, 4 (a, c).

• Exercise 5.4: 2, 4 (a, c).

• Exercise 5.5: 1 (a, c), 3 (b, d).