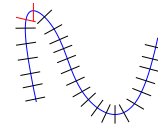


# M421 HW 1



Due Friday Sept. 7

From Wade

Section	Page Number	Problems
5.1	114-115	2b (note $P_n$ given in 2a), 3, 4, 5, 6

## Non-book Exercises

- 1) Complete the proof of Remark 5.7. Show that if  $f : [a, b] \mapsto \mathbf{R}$  is bounded, and  $P, Q \in \mathcal{P}[a, b]$  satisfy  $Q \supseteq P$  then  $U(f, Q) \leq U(f, P)$ .
- 2) Negate the following statements:
  - (a) It rains every wednesday.
  - (b) If wednesday is rainy then the following thursday is snowy.
  - (c) For every  $\epsilon > 0$  there exists a  $\delta$  such that  $|x - y| < \delta$  implies  $|f(x) - f(y)| < \epsilon$ .
  - (d)  $\sup_{x \in [a, b]} f(x) < \infty$ .
  - (e)  $f$  is Riemann integrable, that is:  $\forall \epsilon > 0$  there exists  $P \in \mathcal{P}[a, b]$  such that  $U(f, P) - L(f, P) < \epsilon$ .