

# Math 136, Last HW

This is a homework covering the course as a whole. If you do a good job on this one, it will count heavily toward passing the course. Please hand in something correct, clean, and readable—all three of these are important!

Exercises due Friday, May 8, at 11pm:

1. p. 80, 3.2.1
2. p. 106, 1.8.1(c)
3. p. 106, 1.8.2
4. p. 132, 2.18.3
5. p.132, 2.18.7
6. p. 139, 3.13.2(e)
7. p. 139, 3.13.4
8. p. 139, 3.13.7
9. Show that there is no partial recursive function  $\psi$  such that whenever  $\bar{W}_e$  has exactly one element, then  $\psi(e)$  converges, and  $\bar{W}_e = \{\psi(e)\}$ .
10. Let  $f$  be a total recursive unary function, and let  $A = \{e \mid \varphi_e^{(1)} = f\}$ . Locate the exact level of  $A$  in the arithmetic hierarchy, and prove that  $A$  is complete at that level.