

18.466 second problem set, due Friday, Feb. 21, 2003

1. §1.3 #1.
2. §1.3 #3. *Hint:* For any  $a > 0$  and  $b > 0$ , the *beta function* is defined by  $B(a, b) = \int_0^1 x^{a-1}(1-x)^{b-1}dx$ . The *beta distribution* on  $[0, 1]$  with parameters  $a, b$  is the distribution with density  $f_{a,b}(x) = x^{a-1}(1-x)^{b-1}/B(a, b)$  for  $0 < x < 1$  and 0 elsewhere (with respect to Lebesgue measure).
3. §1.5 #3.
4. §1.5 #4.
5. §1.6 #1.