Answer Key

Math 1271
Fall 2000 Final Exam

Multiple Choice Problems

1. D
2. D
3. E
4. B
5. A

6. B
7. A
8. D
9. B
10. C

11. E (or A if notation is misused)
12. B

Written Answer Problems

13. $500\ \text{cm}^3$; $d^2V/dx^2 = -(3/2)x < 0$

14. 9/2

15.
disk method: $2\pi \int_0^2 20\sqrt{4-y^2}\,dy = 40\pi \int_0^2 \sqrt{4-y^2}\,dy$

washer method: $4\pi \int_3^7 x\sqrt{4-(x-5)^2}\,dx$

16.
a) $24x \cdot (x^2+1)^2 \cdot [(x^2+1)^3+1]^3$
b) $2x \cdot \sqrt{(1+x^8)}$

17.
a) $R_n = (5^2/n^2)\cdot[n(n+1)/2] + 5$
b) $(25/2) + 5 = 35/2$

18.
a) $(1/2)\cdot[(2/3)\cdot(1+x^2)^{3/2} + 10\cdot(1+x^2) + 25\cdot(1+x^2)^{1/2}] + C$
b) $x \ln x - x + C$ [note: you may skip this one, as it requires integration by parts (Section 7.1, Stewart)]