

Math 2443 homework

1. (due 1/26) 15.3 # 13-24 as many as needed, including at least 18, 23, 24, 33, and 34
2. (1/26) 14.4 # 33, 36
3. (1/26) 15.1 # 1, 8, 30, 32, 34, 59, 60
4. (1/26) 14.3 # 39, 47, 49, 50
5. (2/7) 15.3 # 1, 8, 43, 59, 60, 65, 66, 68(e)(f), 77 (use implicit differentiation), 82, 83
6. (2/7) 15.4 # 4, 6, 17, 31, 32, 38
7. (2/7) 15.5 # 5, 6, 9, 13, 14, 15, 23, 24, 39, 45, 46, 51
8. (2/23) 15.6 # 6, 12, 14, 15, 18, 20, 22, 26, 34, 37, 38, 42, 49, 51, 58
9. (2/23) 15.7 # 31, 32, 40, 44 (it suffices to examine $f(x, y) = x^2y^2(a^2b^2 - b^2x^2 - a^2y^2) \dots$ on the domain $\{(x, y) \mid 0 \leq x, 0 \leq y, \frac{x^2}{a^2} + \frac{y^2}{b^2} \leq 1\} \dots$ why?)
10. (2/23) 15.8 # 3, 14, 28, 32
11. (3/9) 16.1 # 5, 11-13
12. (3/9) 16.2 # 9-12, 16, 20, 22
13. (3/9) 16.3 # 14, 15, 23, 26, 27, 39-42, 44
14. (3/9) 16.4 # 7-9, 13, 17, 19, 23, 28, 33, 34 (you may assume that $\int_{-\infty}^{\infty} e^{-x^2} dx = \lim_{a \rightarrow \infty} \int_{-a}^a e^{-x^2} dx$)
15. (3/9) 16.5 # 7, 12, 14 (Hint: $r = 2 \sin(\theta)$)
16. (3/9) 16.6 # 2, 10, 11 ($r = a \cos(\theta)$)
17. (4/4) 16.7 # 11, 19, 25, 26, 32, 39
18. (4/4) 16.8 # 2-6, 9, 14(a), 16, 19, 28, 38
19. (4/4) 16.9 # 1, 2, 4, 7, 10, 13, 17(a), 21, 23
20. (4/4) 17.1 # 2, 5 (first examine $\nabla(xy)$), 6, 11-18, 29-32
21. (4/4) 17.2 # 3-5, 7, 11, 17, 18-19, 24 (show geometrically that the integral is 0, check algebraically if you wish), 31, 32, 44
22. (4/20) 17.3 # 1, 12, 14, 17, 18