

Spring 2003 Final Exam Answers

1. a
2. e
3. no correct answer is listed (it should be $(\cos x)^x(\ln \cos x - x \tan x)$)
4. e
5. b
6. c
7. b
8. e
9. e
10. a. NOTE: This topic is not covered in MATH 141, SPRING 2005 final exam.
11. b. NOTE: This topic is not covered in MATH 141, SPRING 2005 final exam.
12. e
13. b
14. e
15. a) C to 1 b) C to e^{-5} c) C to 1
16. a) CC b) AC c) AC
17. $\ln 4$.
18. C to 1
19.
 - a) $\sum_{n=0}^{\infty} \frac{(-1)^n x^{2n+1}}{(2n+1)!}$
 - b) $\sum_{n=0}^{\infty} \frac{(-1)^n 3x^{4n+2}}{(2n+1)!}$
 - c) $\sum_{n=0}^{\infty} \frac{(-1)^n 3x^{4n+3}}{(4n+3)(2n+1)!}$
20. $R = 1$ and $I = (-4, -2]$
21. a) The intersection points are $(\sqrt{2}/2, \pi/6)$, $(\sqrt{2}/2, -\pi/6)$, $(\sqrt{2}/2, 5\pi/6)$, and $(\sqrt{2}/2, 7\pi/6)$.
 - b) $A = \frac{1}{2} \int_{-\pi/6}^{\pi/6} (\cos 2\theta - 1/2) d\theta$