

MAT 397 — FALL 2007 — EXAM III REVIEW ANSWERS

These are just the answers, not full solutions. Let me know if you think you found a typo.

1. (a) 60 (b) 3

2. (a) $\frac{21}{2} \ln 2$ (b) $\ln 2$

3. (a) $\frac{21}{2}$ (b) $9 \ln 2$

4. (a) $\frac{4}{15} (2\sqrt{2} - 1)$ (b) 36

5. (a) 0 (b) $\frac{1}{2} (1 - \cos 1)$ (c) $\frac{27}{8}$

6. (a) $\frac{1}{6} (e^9 - 1)$ (b) $\frac{1}{9} (4\sqrt{2} - 2)$ (c) $\frac{1}{3} (2\sqrt{2} - 1)$

7. (a) $\frac{33\pi}{2}$ (b) $\frac{\pi}{2} \left(1 - \frac{1}{e^4}\right)$ (c) $\frac{486}{5}$

8. (a) $\frac{81\pi}{2}$ (b) $\frac{2\pi}{3} \left(1 - \frac{\sqrt{2}}{2}\right)$ (c) $\frac{8\pi}{3} (64 - 24\sqrt{3})$

9. (a) $\frac{4}{3}$ and $\left(\frac{4}{3}, 0\right)$ (b) $\frac{\pi}{2} - 1$ and $\left(\frac{\pi^2 - 4}{\frac{\pi}{2} - 1}, \frac{\frac{\pi^2}{32} - \frac{1}{8}}{\frac{\pi}{2} - 1}\right)$

10. (a) $3\sqrt{14}$ (b) $\frac{2\pi}{3} (2\sqrt{2} - 1)$

11. (a) $\frac{1097}{2970}$ (b) skip this one

12. (a) $\frac{16}{3}$ (b) 36π

13. omitted

14. (a) $\frac{\pi}{8}$ (b) 162π

15. $\frac{128\pi}{9}$