

Exam 2 Review Problems

Chapter 7 – Improper Integrals

1. Check your understanding, pg 365 – 18, 19, 22-27
2. Chapter 7.7: 5, 9, 11, 35
3. Chapter 7.8: 3, 6, 29

Chapter 8

4. Chapter 8.2: 19, 21, 25, 26, 29,
5. Chapter 8.4: 9, 10,
6. Chapter 8.5: 1, 3, 5, 7, 19b
7. Show that the volume of a cylinder with radius r and height h is equal to $2\pi r^2 h$.
8. Compute the volume of a solid whose base is the region bounded by $y = x^2 - 4$ and the x -axis and whose cross-sections perpendicular to the x -axis are equilateral triangles.
 - a. compute the volume of the solid with the same base but whose cross-sections perpendicular to they-axis are equilateral triangles.
15. Find the following by recognizing the appropriate Taylor Series.

a. $1 + 0.1^2 + 0.1^3 + 0.1^4 + \dots$

b. $1 + x^2 + x^4 + x^6 + \dots$

c. $\sum_{n=0}^{\infty} (-1)^{n+1} \frac{x^{2n+3}}{(2n+3)!}$

- b. Compute the volume of a solid by rotating the region described above around the line $y = 2$.

9. A leaky 5N bucket is lifted into the air at a constant speed. The rope weighs 0.08 Nm^{-1} . The bucket starts with 2 N of water and leaks at a constant rate. It finishes draining just as it reaches the top. How much work was done lifting the bucket 20m off the ground.

Chapter 10

10. Check Your Understanding
 - a. *** Removed problem ****
 - b. Check your understanding pg 517: 1, 4, 10
11. Exercises 10.1 – 3, 11, 15, 16, 29, 35a
12. Exercises 10.2 – 17, 20, 23
13. Exercises 10.3 – 17, 27
14. ****Removed problem.***