

### Review Problems (from the Textbook)

This is not an exhaustive list of all possible type of problems.  
Answers and solutions to odd exercises are in the book and Student Solutions Manual, respectively.

**Your exam preparations should include review of lecture notes, homework, and solving these review problems.** After review, use the sample exam as a test of readiness. If you can not confidently, independently and quickly solve the sample exam problems correctly, you will not do well on the exam.

Section	Problems	Section	Problems
6.1	27, 37, 39	6.2*	31, 37, 63, 73
6.3*	27, 41, 71, 87, 89	6.4*	21, 39, 47, 49
6.6	11, 19, 27, 63, 65, 67, 69	6.8	19, 33, 47, 59, 77
Chap 6 Review	All three parts except problems involving sections 6.5 and 6.7.		
7.1	5, 9, 17, 21, 27, 33, 37	7.2	5, 9, 17, 23, 27, 29
7.3	5, 7, 15, 21, 25, 29	7.4	9, 15, 23, 25, 31, 39
7.5	9, 13, 33, 51, 71	7.7	7(c), 21 ( $S_n$ & $E_s$ only)
7.8	7, 13, 21, 31, 33		
Chap 7 Review	All three parts except Exercises 51-58, 69 and problem parts involving Midpoint and Trapezoidal rules.		
8.1	9, 13, 15, 35	8.2	9, 13, 15, 17
8.3	5, 7, 11		
Chap 8 Review	Both parts except Concept Check 4-10 and Exercises 5 and 13-23.		
11.1	15, 23, 41, 47, 73, 77	11.2	17, 29, 43, 53, 57
11.3	7, 13, 17, 21, 29	11.4	7, 19, 23, 29, 31
11.5	3, 11, 17, 19, 25, 27	11.6	7, 15, 19, 27, 29, 39
11.7	3, 7, 17, 19, 27, 31	11.8	7, 11, 19, 25, 27
11.9	5, 15, 17, 25	11.10	13, 25, 27, 31, 55
11.11	5 & 7 (Don't graph), 13(a, b), 23, 27 (Don't graph)		
Chap 11 Review	All three parts corresponding to our course coverage, except Exercises 10, 57(b, d), 58(b, d) and 60(b).		
10.1	1, 9, 13, 19	10.2	7, 13, 33, 41, 61
10.3	5, 17, 25, 39, 55	10.4	9, 21, 23, 31
10.5	7, 15, 23, 27, 43		
Chap 10 Review	All three parts except problems involving section 10.6 and Exercises 19, 20, 27, 43 and 44.		

Calculus II

Math 1220

Sample Exam II - 4 pages

Sections 7.3-7.5, 7.7, 7.8 & 8.1-8.3

Calculator Allowed: Scientific or Graphics - Open Course Textbook

No human, other inanimate or electronic aides (including CAS, like Mathematica).

The failure to follow the above policy will result in a zero score in this exam and may also include a failing grade in the course and other academic sanctions. The student code is available at [https://www.weber.edu/ppm/Policies/6-22\\_StudentCode.html](https://www.weber.edu/ppm/Policies/6-22_StudentCode.html).

Name: \_\_\_\_\_

The point value of each problem is in the left-hand margin. You must show your work to receive any credit, except in problem 1. Work neatly.

(12) 1. True or False.

- ( ) (a)  $\int_{-\infty}^{\infty} f(x) dx = \lim_{t \rightarrow \infty} \int_{-t}^t f(x) dx$  for every function  $f$  continuous on the interval  $(-\infty, \infty)$ .
- ( ) (b)  $\int_1^{\infty} \frac{1}{x} dx$  is convergent.
- ( ) (c) The pressure on a thin horizontal plate  $d$  meters below the surface of a liquid with weight density  $\delta$  Newtons per cubic meter is  $P = \delta d$ .
- ( ) (d) The error bound formula for the Simpson's Rule is  $|E_s| \leq \frac{K(b-a)^5}{180n^4}$ , where  $|f^{(4)}(x)| \leq K$  for  $a \leq x \leq b$ .
- ( ) (e) With the substitution  $\theta = \sec^{-1} x$ ,  $\sqrt{x^2 - 1} = \sin \theta$ .
- ( ) (f) The proper form of partial fractions of  $\frac{x^2-1}{x(x^2+1)}$  is  $\frac{x^2-1}{x(x^2+1)} = \frac{A}{x} + \frac{Bx+C}{x^2+1}$ .

(6) 2. Use the Simpson's Rule with  $n = 6$  to approximate  $\int_0^3 \frac{1}{x^3+1} dx$ .

(14) 3. Evaluate the following integrals.

(a)  $\int \frac{x+1}{\sqrt{x^2+4}} dx$

(b)  $\int \frac{-2x+4}{(x^2+1)(x-1)^2} dx$

(7) 4. Evaluate the integral  $\int_0^1 \frac{1}{1-x} dx$  or show it is divergent.

(5) 5. Write a definite integral (or a sum of definite integrals) which upon evaluation you will get the area of the surface generated by revolving the curve  $y = \sin x$ ,  $0 \leq x \leq \frac{\pi}{2}$ , about the  $x$ -axis. Do not evaluate it.

(6) 6. A pool has a square vertical glass light cover of width 1 foot. If the bottom of this plate is 5 feet under the water, write a definite integral (or a sum of definite integrals) which upon evaluation you will get the fluid force on this plate. Use  $\delta = 62.5 \text{ lb/ft}^3$ . Do not evaluate it.

(7) 7. Use the comparison theorem to show that the integral  $\int_0^{\infty} \frac{1}{e^x+2} dx$  is convergent. Do not evaluate it.

(8) 8. Find the length of the curve  $y = \ln(x^2 - 1)$ ,  $2 \leq x \leq 5$ . **State the formula used.**