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 - 5 pages
Sections 7.2-7.5, 7.7, 7.8 & 8.1-8.3

Time Limit: 90 Minutes[1] No Scratch Paper Calculator Allowed: Not CAS capable

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.

(15) 1. True or False.

( ) (a) $\int_{-\infty}^{\infty} f(x)\,dx = \lim_{t\to\infty}\int_{-t}^{t} f(x)\,dx$ for every function f continuous on the interval $(-\infty, \infty)$.

( ) (b) $\int_{1}^{\infty} \frac{1}{x}\,dx$ is convergent.

( ) (c) $\sqrt{1-x^2} = \cos\theta$ if $x = \sin\theta$ and $-\pi/2 \le \theta \le \pi/2$.

( ) (d) The pressure on a thin horizontal plate d meters below the surface of a liquid with weight density δ Newtons per cubic meter is $P = \delta\, d$.

( ) (e) The error bound formula for the Simpson's Rule is $|E_s| \le \frac{K(b-a)^5}{180n^4}$, where $|f^{(4)}(x)| \le K$ for $a \le x \le b$.

(6) 2. Write a definite integral which upon evaluation you will get the length of the curve $y = \ln x$, $1 \le x \le e$. Do not evaluate it. **State the formula used.**

[1] **If you exceed the time limit, you will receive a score of zero.**

(21) 3. Evaluate the following integrals.

(a) $\int \sin^4 x \, dx$

(b) $\int_0^{\frac{\pi}{4}} \tan^3 x \, \sec^2 x \, dx$

(c) $\int \sin^2 x \, \cos^3 x \, dx$

(16) 4. Evaluate the following integrals.

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

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

(12) 5. Determine whether each integral is convergent or divergent. Evaluate those that are convergent.

(a) $\int_0^1 \frac{1}{1-x}\,dx$

(b) $\int_e^\infty \frac{\ln x}{x^2}\,dx$

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

(8) 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.

(7) 8. 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 $y = \sin x$, $0 \le x \le \frac{\pi}{2}$, about the x-axis. Do not evaluate it.

(7) 9. 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 $\delta = 62.5\ lb/ft^3$. Do not evaluate it.