

10.10 Review Exercises, page 502

- 1 $(x^2/2)\sin^{-1}x - (1/4)\sin^{-1}x + (x/4)\sqrt{1-x^2} + C$ 3 $2\ln 2 - 1$
 5 $(1/6)\sin^3 2x - (1/10)\sin^5 2x + C$ 7 $(1/5)\sec^5 x + C$ 9 $x/25\sqrt{x^2+25} + C$
 11 $2\ln\left|\frac{2-\sqrt{4-x^2}}{x}\right| + \sqrt{4-x^2} + C$ 13 $2\ln|x-1| - \ln|x| - \frac{x}{(x-1)^2} + C$
 15 $\ln\frac{(x+3)^2(x^2+9)^2}{|x-3|^5} + \frac{1}{3}\tan^{-1}\frac{x}{3} + C$ 17 $-\sqrt{4+4x-x^2} + 2\sin^{-1}\frac{x-2}{\sqrt{8}} + C$
 19 $3(x+8)^{1/3} + \ln[(x+8)^{1/3} - 2]^2 - \ln[(x+8)^{2/3} + 2(x+8)^{1/3} + 4]$
 $-\frac{6}{\sqrt{3}}\tan^{-1}\frac{(x+8)^{1/3} + 1}{\sqrt{3}} + C$
 21 $(1/13)e^{2x}(2\sin 3x - 3\cos 3x) + C$ 23 $\frac{1}{4}\sin^4 x - \frac{1}{8}\sin^6 x + C$ 25 $-\sqrt{4-x^2} + C$
 27 $\frac{1}{3}x^3 - x^2 + 3x - \frac{1}{2x} - \frac{1}{4}\ln|x| - \frac{23}{4}\ln|x+2| + C$ 29 $2\tan^{-1}(x^{1/2}) + C$
 31 $\ln|\sec e^x + \tan e^x| + C$ 33 $\frac{1}{125}[10x\sin 5x - (25x^2 - 2)\cos 5x] + C$
 35 $\frac{7}{3}\cos^{7/2}x - \frac{2}{3}\cos^{3/2}x + C$ 37 $\frac{2}{3}(1+e^x)^{3/2} + C$
 39 $(1/16)[2x\sqrt{4x^2+25} - 25\ln(2x + \sqrt{4x^2+25})] + C$ 41 $(1/3)\tan^3 x + C$
 43 $-x\csc x + \ln|\csc x - \cot x| + C$ 45 $-(1/4)(8-x^3)^{4/3} + C$
 47 $2\cos\sqrt{x} + 2\sqrt{x}\sin\sqrt{x} + C$ 49 $(1/2)e^{2x} - e^x + \ln(1+e^x) + C$
 51 $(2/5)x^{5/2} - (8/3)x^{3/2} + 6x^{1/2} + C$ 53 $(1/3)(16-x^2)^{3/2} - 16(16-x^2)^{1/2} + C$
 55 $(11/2)\ln|x+5| - (15/2)\ln|x+7| + C$ 57 $x\tan^{-1}5x - (1/10)\ln|1+25x^2| + C$
 59 $e^{\tan x} + C$ 61 $(1/\sqrt{5})\ln|\sqrt{5}x + \sqrt{7+5x^2}| + C$
 63 $(-1/5)\cot^5 x - (1/3)\cot^3 x - \cot x - x + C$
 65 $(1/5)(x^2-25)^{5/2} + (25/3)(x^2-25)^{3/2} + C$ 67 $x^3/3 - (1/4)\tanh 4x + C$
 69 $(-1/4)x^2e^{-4x} - (1/8)xe^{-4x} - (1/32)e^{-4x} + C$
 71 $3\sin^{-1}(x+5)/6 + C$ 73 $(-1/7)\cos 7x + C$
 75 $18\ln|x-2| - 9\ln|x-1| - 5\ln|x-3| + C$
 77 $x^3\sin x + 3x^2\cos x - 6x\sin x - 6\cos x + \sin x + C$
 79 $(-1/x)\sqrt{9-4x^2} - 2\sin^{-1}(2x/3) + C$
 81 $24x - (10/3)\ln|\sin 3x| - (1/3)\cot 3x + C$
 83 $-\ln x - 4\sqrt[4]{x} + 4\ln(1+\sqrt[4]{x}) + C$ 85 $-2\sqrt{1+\cos x} + C$
 87 $-x/2(25+x^2) + (1/10)\tan^{-1}(x/5) + C$ 89 $(1/3)\sec^3 x - \sec x + C$
 91 $\ln(x^2+4) - (3/2)\tan^{-1}(x/2) + (7/\sqrt{5})\tan^{-1}(x/\sqrt{5}) + C$
 93 $(1/4)x^4 - 2x^2 + 4\ln|x| + C$ 95 $(2/5)x^{5/2}\ln x - (4/25)x^{5/2} + C$

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ANSWERS

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- 97 $(3/64)(2x+3)^{8/3} - (9/20)(2x+3)^{5/3} + (27/16)(2x+3)^{2/3} + C$
 99 $(1/2)e^{x^2}(x^2-1) + C$ 101 $2\pi^2$ 103 $\ln(2+\sqrt{3})$
 105 $\bar{x} = 3/5, \bar{y} = 12/35$ 107 $\bar{x} = 8/3$ 109 $\bar{y} = (1-7e^{-6})/8(1-4e^{-3})$

CHAPTER 11

Exercises 11.1, page 512

- 1 $1/2$ 3 $1/40$ 5 $3/13$ 7 0 9 $-1/2$ 11 $-1/2$ 13 $1/6$
 15 ∞ 17 $1/3$ 19 ∞ 21 1 23 0 25 Does not exist
 27 $2/5$ 29 ∞ 31 0 33 ∞ 35 2 37 Does not exist 39 $3/5$
 41 Does not exist 43 Does not exist 45 ∞ 47 ∞ 49 2

Exercises 11.2, page 516

- 1 0 3 0 5 0 7 0 9 1 11 0 13 e^5 15 1 17 1
 19 Does not exist 21 e^2 23 2 25 0 27 1 29 Does not exist 31 $1/2$