

MA166: Recitation 7 Prep

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1 Homework Problems

Section 1.1: Homework 15

Problem 1.1 (WebAssign, HW 15, # 1). Use the table of integrals to evaluate the integral. (Remember to use $\ln|u|$ where appropriate. Use C for the constant of integration.)

$$\int \frac{\cos x}{\sin^2 x - 36} dx.$$

Solution. ☺

Problem 1.2 (WebAssign, HW 15, # 2). Use the table of integrals to evaluate the integral. (Remember to use $\ln|u|$ where appropriate. Use C for the constant of integration.)

$$\int \frac{1}{x^2 \sqrt{81x^2 + 4}} dx.$$

Solution. ☺

Problem 1.3 (WebAssign, HW 15, # 3). Use the table of integrals to evaluate the integral. (Remember to use $\ln|u|$ where appropriate. Use C for the constant of integration.)

$$\int \frac{\tan^3(6/z)}{z^2} dz.$$

Solution. ☺

Problem 1.4 (WebAssign, HW 15, # 4). Use the table of integrals to evaluate the integral. (Remember to use $\ln|u|$ where appropriate. Use C for the constant of integration.)

$$\int \frac{e^{2x}}{13 - e^{4x}} dx.$$

Solution. ☺

Problem 1.5 (WebAssign, HW 15, # 5). Use the trapezoidal rule, the midpoint rule, and Simpson's rule to approximate the given integral with specified value n . (Round your answer to six decimal places).

$$\int_1^4 2\sqrt{\ln} dx, \quad n = 6$$

Solution. ☺

Problem 1.6 (WebAssign, HW 15, # 6). Use the trapezoidal rule, the midpoint rule, and Simpson's rule to approximate the given integral with specified value n . (Round your answer to six decimal places).

$$\int_0^4 e^{2\sqrt{t}} dt, \quad n = 8.$$

Solution. ☺

Section 1.2: Homework 16

Problem 1.7 (WebAssign, HW 16, # 1). Determine whether the integral is convergent or divergent.

$$\int_{-\infty}^0 \frac{1}{4-7x} dx.$$

Solution. ☺

Problem 1.8 (WebAssign, HW 16, # 2). Determine whether the integral is convergent or divergent.

$$\int_2^{\infty} e^{-9p} dp.$$

Solution. ☺

Problem 1.9 (WebAssign, HW 16, # 3). Determine whether the integral is convergent or divergent.

$$\int_{-\infty}^{\infty} 3xe^{-x^2} dx.$$

Solution. ☺

Problem 1.10 (WebAssign, HW 16, # 4). Determine whether the integral is convergent or divergent.

$$\int_1^{\infty} 37 \frac{e^{-\sqrt{x}}}{\sqrt{x}} dx.$$

Solution. ☺

Problem 1.11 (WebAssign, HW 16, # 5). Determine whether the integral is convergent or divergent.

$$\int_{-\infty}^{\infty} 31 \cos \pi t dt.$$

Solution. ☺

Problem 1.12 (WebAssign, HW 16, # 6). Determine whether the integral is convergent or divergent.

$$\int_2^{\infty} \frac{1}{v^2 + 5v - 6} dv.$$

Solution. ☺

Problem 1.13 (WebAssign, HW 16, # 7). Determine whether the integral is convergent or divergent.

$$\int_1^{\infty} 25 \frac{\ln x}{x} dx.$$

Solution. ☺

Problem 1.14 (WebAssign, HW 16, # 8). Determine whether the integral is convergent or divergent.

$$\int_{-2}^3 \frac{45}{x^4} dx.$$

Solution.

☺

Problem 1.15 (WebAssign, HW 16, # 9). Determine whether the integral is convergent or divergent.

$$\int_0^9 \frac{7}{\sqrt{x-1}} dx.$$

Solution.

☺

Section 1.3: Homework 17

Problem 1.16 (WebAssign, HW 17, # 1). Find the exact length of the curve.

$$y = 2 + 2x^{3/2}, \quad 0 \leq x \leq 1.$$

Solution.

☺

Problem 1.17 (WebAssign, HW 17, # 2). Find the exact length of the curve.

$$x = \frac{\sqrt{y}(y-3)}{3}, \quad 9 \leq y \leq 25.$$

Solution.

☺

Problem 1.18 (WebAssign, HW 17, # 3). Find the exact length of the curve.

$$y = \ln |\sec x|, \quad 0 \leq x \leq \frac{\pi}{3}.$$

Solution.

☺

Problem 1.19 (WebAssign, HW 17, # 4). Find the exact length of the curve.

$$y = \ln(1 - x^2), \quad 0 \leq x \leq \frac{1}{3}.$$

Solution.

☺

Problem 1.20 (WebAssign, HW 17, # 5). Find the exact area of the surface obtained by rotating the curve about the x -axis.

$$y = x^3, \quad 0 \leq x \leq 3.$$

Solution.

☺

Problem 1.21 (WebAssign, HW 17, # 6). Find the exact area of the surface obtained by rotating the curve about the x -axis.

$$y = \sin\left(\frac{\pi x}{3}\right), \quad 0 \leq x \leq 3.$$

Solution.



Problem 1.22 (WebAssign, HW 17, # 7). The given curve is rotated about the y -axis. Find the area of the resulting surface.

$$y = \sqrt[3]{x}, \quad 2 \leq y \leq 4.$$

Solution.



Problem 1.23 (WebAssign, HW 17, # 8). The given curve is rotated about the y -axis. Find the area of the resulting surface.

$$y = 4 - x^2, \quad 0 \leq x \leq 5.$$

Solution.



2 Exam II Problems