Carolyn French

Review Homework

1. Section 5.5
2. # 10, # 24

3. Use Part 1 of the Fundamental Theorem of Calculus to find the derivative of the function.
   10. $h(x) = \int_2^{x^2} \sqrt{1+r^3}\, dr$

6. Find the interval on which the curve $y = \int_0^x \frac{1}{1+t+t^2}\, dt$ is concave upward.

Nick Delgado

8.2

15. Determine whether the series converges.

$$\sum_{n=1}^{\infty} \sqrt[n]{2}$$

27. Find the values of x for which the series converges

$$\sum_{n=1}^{\infty} \frac{x^n}{3^n}$$

Blake Oliano
12-9-09

1. $\int_{\pi/2}^{\pi} x^3 \cos(x^2)\, dx$

2. $\int_{0}^{1/2} \sin^{-1}(x)\, dx$

Griffin Williams

Find the Remainder at $n=8$

8.4 Alternating Series Remainder

[7] $\sum_{n=1}^{\infty} (-1)^n \frac{3n-1}{2n+1}$

[8] $\sum_{n=1}^{\infty} (-1)^{n-1} \frac{\ln n}{n}$

Eli Scandalis

Determine Whether the series is absolutely conv., condit. conv., or diverges.

1) $\sum_{n=1}^{\infty} \left(\frac{n^2+1}{2n^2+1}\right)^n$

2) $\sum_{n=1}^{\infty} \frac{(-1)^n}{(\arctan n)^n}$

Marya Bliznyuk

Review Problems

1. A spring has a natural length of 20 cm. If a 25 N force is required to keep it stretched to a length of 30 cm, how much work is required to stretch it from 20 cm to 30 cm?

2. If 6 J of work is needed to stretch a spring from 10 cm to 12 cm and another 10 J is needed to stretch it from 12 cm to 14 cm, what is the natural length of the spring?

Alison Mackey

1. $\int x e^{x^2} \, dx$

2. $\int_0^{\pi} \sec^2 \left(\frac{t}{4}\right) dt$

David Yandell

6.4 (Tables of Integrals)

Find the following integrals, using table of integrals:

1. $\int e^{2x} \sin(3x)\, dx$

2. $\int \frac{\sqrt{5x+23}}{x^6}\, dx$

Super Fun Math Review.

Alex [illegible]

Converge or Diverge?

1) $\sum_{n=0}^{\infty} \frac{n^2}{5n^3+4}$

Converge or Diverge?

2) $\sum_{n=1}^{\infty} \frac{1}{n}$

Kevin Forey

Determine if convergent or divergent:

$$\sum_{n=1}^{\infty} \frac{1}{\sqrt{n^2+1}}$$

Jacob R.

8.7

$f(x) = e^{i\theta}$

$f(x) = e^{\frac{i\theta}{6}}$

Alvin Javier
Math 151 02

Review problems

1. Determine whether the series is absolutely convergent, conditionally convergent, or divergent

$$\sum_{n=1}^{\infty} \frac{(-3)^n}{n^3}$$

2. (a) show that $\sum_{n=0}^{\infty} \frac{x^n}{n!}$ converges for all x

(b) deduce that $\lim_{n\to\infty} \frac{x^n}{n!} = 0$ for all x

Beau Osland Questions

1. Is the following series convergent or divergent? If it is convergent, find what it converges to.

$$1 + 0.4 + 0.16 + 0.064 + \ldots$$

2. Does the following series converge? If so, what does it converge to?

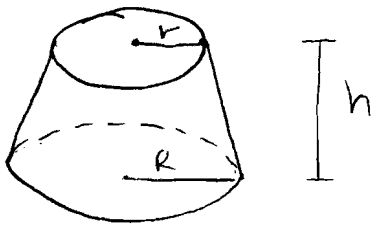
$$\sum_{n=1}^{\infty} \frac{1+3^n}{2^n}$$

Katie Beaudoin

1. Find the Volume of the solid obtained by rotating the region bounded by the given curves about the specified Line. Sketch the region, the solid, and a typical disk or washer.

$y = \frac{1}{x}$, $x = 1$, $x = 2$, $y = 0$; about the x-axis

2. Find the volume of a frustrum of a right circular cone with height h, lower base radius R, and top radius r.



Will Muldowney

2. $\int \sin^6 x \cos^3 x \, dx$

32. $\int \csc^4 x \cot^6 x \, dx$

Maddie Gerling

1) Evaluate $\int x\tan^{-1}x$ to the 4th decimal

2) Find the Maclaurin series for $f(x) = x\cos 2x$

Ian Mahaney

Evaluate the integrals:

(A) $\int_0^1 \frac{2x+3}{(x+1)^2}\,dx$

(B) $\int \frac{5x^2+3x-2}{x^3+2x^2}\,dx$

Aaron Bales

7.1

Sketch the region endosed by the given curves. Decide whether to integrate with respect to x or y. Draw a typical approximating rectangle and label it's height and width. Then find the area of region.

1) $y = x + 1$, $y = 9 - x^2$, $x = -1$, $x = 2$

2) $y = \sin x$, $y = 2x/\pi$, $x \geq 0$

Allyn Trucci ♡

7) Find the derivative of the function.

$$g(y) = \int_2^y t^2 \sin(t)\, dt$$

13) Find the derivative of the function.

$$g(x) = \int_{2x}^{3x} \frac{u^2-1}{u^2+1}\, du$$

Joseph Wallace

Section 8.3 (P-Series) - Review Questions

Determine whether the series is convergent or divergent:

(20) $\sum_{n=1}^{\infty} \frac{1}{\sqrt{n^3+1}}$

(26) $\sum_{n=1}^{\infty} \frac{n+5}{\sqrt[3]{n^7+n^2}}$

Kristin Crawford
12/9/09

7. $\sum_{n=1}^{\infty} \frac{1}{n^4}$

25. $\sum_{n=1}^{\infty} \sin\left(\frac{1}{n}\right)$

Find a formula for the general term a_n of the sequence, assuming that the pattern of the first few terms continues.

$$\left\{1, -\frac{2}{3}, \frac{4}{9}, -\frac{8}{27}, \ldots\right\}$$

Determine whether the sequence converges or diverges. If it converges, find the limit.

$$a_n = \frac{(-1)^n n^3}{n^3 + 2n^2 + 1}$$

Annie Heaton

Find the radius of convergence and the interval of convergence of the series.

16 $\sum_{n=1}^{\infty} \frac{n(x-4)^n}{n^3+1}$

17 $\sum_{n=1}^{\infty} n!(2x-1)^n$

Scott Gump

Problems

1. Find the power series represention of the function and the interval of convergence.

$$f(x) = \frac{x}{9+x^2}$$

2. Use a power series to approximate the definite integral to six decimal places.

$$\int_0^{0.3} \frac{x^2}{1+x^4}\,dx$$

John Mute

"Volumes by Cylindrical Shells"

#1 Use the method of cylindrical shells to find the volume generated by rotating the region bound by,

$y = x^2$, $y = 0$, $x = 1$

about the y-axis.

#2 Use cylindrical shells to find the volume of the region bounded by

$x = y^2$

and $y = x - 2$

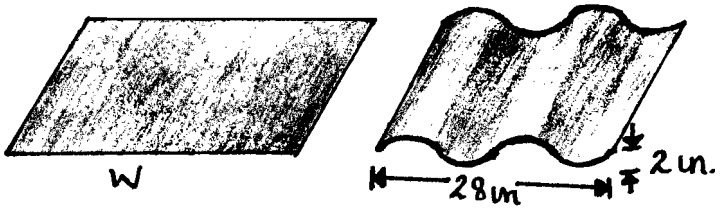
around $y = -2$

Anna Yamamoto

1. Find the arclength.

$y = \ln(\cos x) \quad 0 \le x \le \frac{\pi}{3}$

2. A manufacturer of corrugated metal roofing wants to produce panels that are 28 in. wide and 2 in. thick by processing flat sheets of metal as shown below. The profile of the roofing takes the shape of a sine wave. Verify that the sine curve has the equation $y = \sin(\pi x/7)$ and find the width, w, of a flat metal sheet used to make the panel. (Use your calculator to evaluate the integral to four significant figures)



Erin Hong
Calc II

5.1 : Areas & Distances

3.

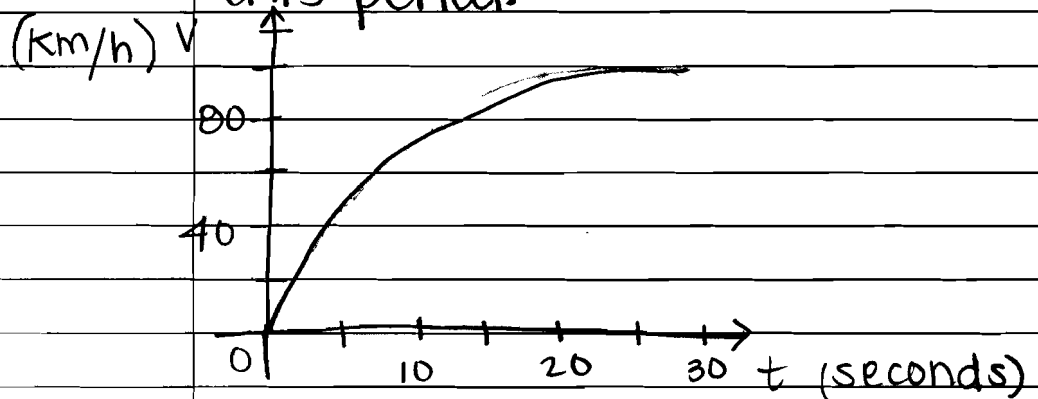
a. Estimate the area under the graph of $f(x) = 1/x$ from $x=1$ to $x=5$ using four approximating rectangles and right endpoints. Sketch the graph and the rectangles. Is your estimate an underestimate or an overestimate?

b. Repeat part (a) using left endpoints.

Erin Hong

5.1 : Areas & Distances

12. The velocity graph of a car accelerating from rest to a speed of 120 km/h over a period of 30 seconds is shown. Estimate the distance traveled during this period.



Daniel Hogen

Question #1

Determine whether the series is absolutely convergent, conditionally convergent, or divergent.

$$\sum_{n=1}^{\infty} \left(\frac{(n^2+1)}{(2n^2+1)} \right)^n$$

Question #2

Determine whether series is absolutely convergent, conditionally convergent, or divergent.

$$\sum_{n=1}^{\infty} (-1)^n \left(\frac{n}{n^2+1} \right)$$

Hillary Hawkins
Calc2

HW#48

25. Determine whether the integral is convergent or divergent. Evaluate if convergent.

$$\int_{-2}^{14} \frac{dx}{\sqrt[4]{x+2}}$$

1. Explain why each of the following integrals is improper.

a) $\int_1^{\infty} x^4 e^{-x^4} dx$

b) $\int_0^{\pi/2} \sec x \cdot dx$

c) $\int_0^2 \frac{x}{x^2-5x+6} dx$

d) $\int_1^2 \ln(x-1) dx$

Ben Brantley

1) Find the area between the curves $y=12-x^2$ and $y=x^2-6$

2) Find the area between the curves $y=x^2-x$ and $y=x^3-4x^2+3x$

Ellen Statham

$$\int_0^{\pi/4} \frac{1+\cos^2\theta}{\cos^2\theta}\, d\theta$$

$$\int_{-1}^{0} (2x - e^x)$$

Kate
Partynski

1) Approximate the given integral using:

a) The Midpoint Rule

b) The Trapezoidal Rule

c) Simpson's Rule

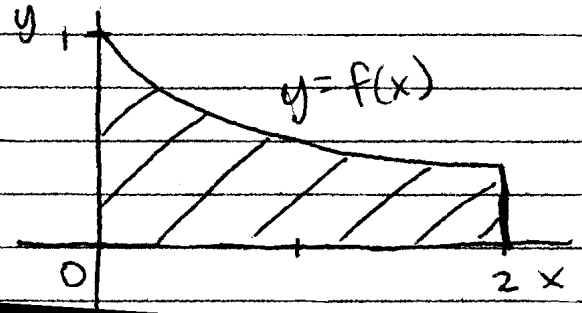
$$\int_1^2 \frac{1}{x}\,dx$$

and 4 intervals.

2) The left, Trapezoidal, and Midpoint Rule approximations were used to estimate $\int_0^2 f(x)\,dx$ (the graph of f is shown). The estimates were 0.7811, 0.8675, 0.8632, and 0.9540. The same number of sub-intervals was used in each.

a) Which rule produced which estimate?

b) Between which two approximations is the true value of $\int_0^2 f(x)\,dx$?



Jamie Shea

1) Assume a demand curve $p_d(x) = -0.1x^2 - 10x + 200$.
   a) what price should the producer charge to maximize revenue?
   b) what is the consumer surplus at this price?

2) The demand function for a certain commodity is $p = 5 - \frac{1}{10}x$. Find the consumer surplus when the sales level is 30. Draw the demand curve & identify the consumer surplus.

8.7 | Kelly Fromm

(13) Find the taylor series for f(x) centered at the given value of a. Find the radius.

$f(x) = e^x$, $a = 3$

(44) Evaluate the indefinite integral as an infinite series.

$$\int \frac{\sin x}{x} \, dx$$

Samantha Baumstark

$$\int_0^{\pi/3} \tan^5 x \sec^4 x \, dx$$

$$\int_0^{2\sqrt{3}} \frac{x^3}{\sqrt{16 - x^2}} \, dx$$

Andrew McCraven
Problems

8.3 Direct Comparison Test

9. $\sum_{n=1}^{\infty} \frac{1}{n^2+n+1}$

21. $\sum_{n=1}^{\infty} \frac{1}{\sqrt{n^2+1}}$

Duggan Clem
Section [redacted]

(6) Express the limit as a definite integral on the given interval.

$$\lim_{n\to\infty} \sum_{i=1}^{n} \frac{e^{x_i}}{1+x_i} \Delta x \quad [1,5]$$

(21) Evaluate the integral

$$\int_0^2 (2-x^2)\,dx$$

Heidi Hirsh

49. $\int_0^{0.1} \frac{dx}{\sqrt{1+x^3}}$ $\quad (|\text{error}| < 10^{-8})$

51. $\lim_{x \to 0} \frac{x - \tan^{-1} x}{x^3}$

Brooke Candle

Final Review: 12/09/09

Chapter 6.1

7. evaluate the integral (by parts)

$\int x^2 \sin \pi x \, dx$

26. $\int x^5 \cos(x^3) \, dx$