(1 point)

$$\int_0^3 \sqrt{x^2 + 3}\, dx$$

a) Approximate the definite integral with the Trapezoid Rule and $n = 6$.

1/4*(3sqrt(3)+sqrt(13)+4+

b) Approximate the definite integral with Simpson's Rule and $n = 6$.

1/6*(3sqrt(3)+2sqrt(13)+4

(1 point)

Use the Error Bound to find the least possible value of N for which $Error(S_N) \le 1 \times 10^{-9}$ in approximating

$\int_0^1 5e^{x^2}\, dx$

using the result that

$$Error(S_N) \le \frac{K_4(b-a)^5}{180N^4},$$

where K_4 is the least upper bound for all absolute values of the fourth derivatives of the function $5e^{x^2}$ on the interval $[a, b]$.

$N = $ | 276

Hint:

(1 point)

$$\int_2^4 23x^2\, dx$$

a) Approximate the definite integral with the Trapezoid Rule and $n = 4$.

1725/4

b) Approximate the definite integral with Simpson's Rule and $n = 4$.

1288/3

c) Find the exact value of the integral.

1288/3

(1 point)

$$\int_{-2}^2 \frac{1}{\sin x + 4}\, dx$$

a) Approximate the definite integral with the Trapezoid Rule and $n = 6$.

1/3*(1/(sin(-2)+4)+2/(sin(--

b) Approximate the definite integral with Simpson's Rule and $n = 6$.

2/9*(1/(sin(-2)+4)+4/(sin(--

(1 point) Find the area of the region

$$R = \{(x, y) \mid x \ge 1, 0 \le y \le 1/x\}$$

Note: If the surface area is infinite, type *infinity*.

Area = | infinity

(1 point)

Consider the integral

$$\int_{-\infty}^{\infty} 10e^{-|x|}\, dx$$

If the integral is divergent, type an upper-case "D". Otherwise, evaluate the integral.

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(1 point)

Use the Comparison Theorem to determine whether the following integral is convergent or divergent.

Convergent ⇕ 1. $\int_1^{\infty} \frac{4x}{\sqrt{1+x^6}}\, dx$

(	(	correct
-1	-1	correct
INF	INF	correct
)	)	correct
-1/[(p+2)^2]	$\frac{-1}{(p+2)^2}$	incorrect

At least one of the answers above is NOT correct.

(1 point)

(a) Find the values of p for which the following integral converges:

$$\int_0^1 x^p \ln(x)\, dx$$

Input your answer by writing it as an interval. Enter brackets or parentheses in the first and fourth blanks as appropriate, and enter the interval endpoints in the second and third blanks. Use INF and NINF (in upper-case letters) for positive and negative infinity if needed. If the improper integral diverges for all p, type an upper-case "D" in every blank.

Values of p are in the interval (| -1 | , | INF |)

For the values of p at which the integral converges, evaluate it. Integral = | -1/(p+2)^2