Math 122: Final Exam Review - Bingo!

Outline

The relative rate of change of P is

$$r =$$

A function is decreasing on an interval if the derivative is _____ on that interval.

QUESTIONS

$$\int_a^b f(x)dx =$$

An function of the form $P(t) = P_0 e^{rt}$ models exponential growth when r is _____.

A point p is a critical point of a continuous function f if...

QUESTIONS

$$\int 7dx =$$

The slope of the line passing through $(3, \frac{1}{2})$ and $(2, 1)$ is

$$m =$$

QUESTIONS

$$\int 36x^2 + 26x dx =$$

Let $f(x) = -x^2 + 1$. Compute the average rate of change of f between $x = 3$ and $x = 5$.

Differentiate

$$f(x) = 3x + 7$$

QUESTIONS

$$\int (x+2)e^{\frac{1}{2}x^2+2x+1}dx =$$

Differentiate

$$x \ln(x)$$

A biologist observes a population with initial size 81. In two years, only 9 remain. Find an exponential function for the size of the population as a function of t years since the initial observation.

Differentiate

$$e^{\frac{1}{2}x^2+2x+1}$$

QUESTIONS

$$\int \frac{4x}{2x^2+7}dx =$$

Find the x-intercepts of the function $f(x) = -2x^2 + 8x - 6$.

QUESTIONS

Differentiate

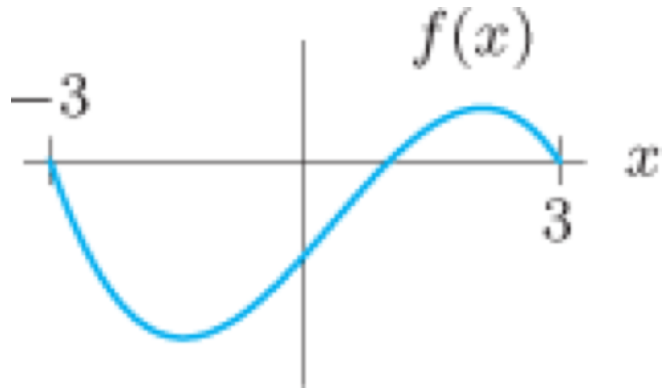
$$\frac{x}{e^x}$$

QUESTIONS

$$\int 30e^{5x} - 2xe^{-x^2}\,dx =$$

A biologist observes a second population with initial size 9. In two years, the size is 81. Find an exponential function for the size of the population as a function of t years since the initial observation.

Using the graph below, determine if $\int_{-3}^{3} f(x)dx$ is positive, negative, or approximately zero.



Find any local maxima or minima of the function $f(x) = 10x^4 - 4x^5$. List any maxima first then minima.

Find the area between the curves $y = \sqrt{x}$ and $y = x^2$.

Find the global maximum *value* and the global minimum *value* of $f(x) = 10x^4 - 4x^3$ on the interval $[1, 3]$.

QUESTIONS

Evaluate

$$\int_2^3 3x^2 + 7dx$$