

Adopt a Function (a review exercise) sp20

Choices:

$f(x)$	$\frac{\sin^2(x)}{x}$ vs $\frac{x}{\sqrt{x^2+1}}$	$\frac{x^2}{x-1}$	$x^{\frac{2}{3}}(x^2-4)$	$\frac{e^{\sqrt[3]{x}}}{\sqrt[3]{x^2}}$	$\frac{\ln^2 x}{x}$
[a,b]	Discuss similarity only [-1,1]	$\left[\frac{1}{e}-1, 1-\frac{1}{e}\right]$	[-1,1]	[-8,b]	[a, 1]
c	$\pi/2$ Discuss similarity only	$1 - \frac{1}{e^n}$	1/8	1	1
Specific instruction	Use a Riemann sum with 4 partitions to find an upper sum and a lower sum for the area between 0 and pi. Write zeros as a nth term seq.	Take limit as n approaches infinity. What does this mean?	Use linearization at 1/8 to estimate $f(1/9)$. Can the Mean Value Thm for derivative be used on [a,b]? Why or why not?	Take limit as b approaches zero from the left. What does this mean? Use result to find the average value of f between -8 and 0.	Take limit as a approaches zero from the right. What does this mean? Show that $f'(x) > 0$ for all $x > M$ for some number M. Find M what critical feature of the graph does it match with?

General instructions:

$f''(x)$ double check this against technology	$f'(x)$	$f(x)$ Write group's function below	$F(x)$
Use graphs and technology to explain and find approximate info about inflection point and intervals of positive or negative concavity .	Describe non-diff. points and critical points. Describe intervals of monotonicity.	Use limits to describe end points, end behaviors and discontinuities	Compute $\int_a^b f dx$. Discuss the role, if any, that symmetry may play in this.
	Find the equation of the tan line at $x=c$. Explain the concept of linearization.	Use the ESSAY guideline along with limits and critical points to sketch a large well labeled graph of $f(x)$	Shade the depicted region on graph. Explain which regions are positive and which are negative