

SCORE: 18 / 20 POINTS

What day of the month is your birthday ?
What are the last 2 digits of your address ?
What are the last 2 digits of your zip code ?
What are the last 2 digits of your social security number ?
[IF YOU DO NOT HAVE A SOCIAL SECURITY NUMBER,
USE YOUR STUDENT ID NUMBER]

0 2
6 7
5 1
3 5

Estimate the slope of $f(x) = \sqrt{x}$ at $x = 2$ to two decimal places by using the method of secant lines discussed in class.

Show 6 points you used, and the corresponding slopes. You must use 3 points on each side of $x = 2$.

SCORE: 4 / 4 POINTS

POINT	SLOPE OF SECANT LINE	POINT	SLOPE OF SECANT LINE
(3 , 1.7321)	$\frac{.3179}{1} = .3179 \quad \frac{1}{2}$	(1 , 1)	$\frac{.4142}{1} = .4142 \quad \frac{1}{2}$
(2.1 , 1.4491)	$\frac{.0349}{.1} = .349 \quad \frac{1}{2}$	(1.9 , 1.3784)	$\frac{.0358}{.1} = .358 \quad \frac{1}{2}$
(2.01 , 1.4177)	$\frac{.0035}{.01} = .35 \quad \frac{1}{2}$	(1.99 , 1.4107)	$\frac{.0035}{.01} = .35 \quad \frac{1}{2}$

ESTIMATED SLOPE OF $f(x) = \sqrt{x}$ AT $x = 2$: .35 1

Estimate the length of the curve $f(x) = \frac{1}{x}$ from $x = 1$ to $x = 9$ to two decimal places, using 4 line segments, at equally spaced x-values.

Write down the numerical expression you needed to enter into your calculator.

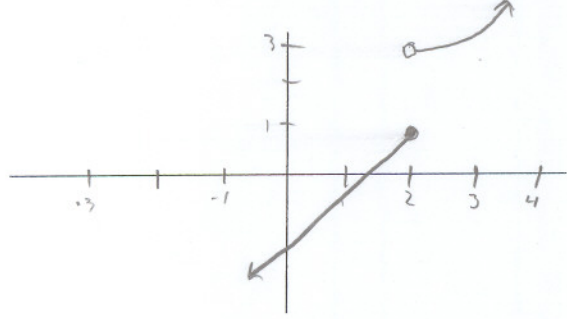
SCORE: 2 / 3 POINTS

NUMERICAL EXPRESSION: $\sqrt{4.4444} + \sqrt{4.01776} + \sqrt{4.00326} + \sqrt{4.001}$ $\approx$

ESTIMATED LENGTH OF CURVE: ≈ 8.11 1

Sketch a function $f(x)$ such that $f(2)$ exists but $\lim_{x \rightarrow 2} f(x)$ does not exist.

SCORE: 2 / 2 POINTS



Estimate the following limits (to 2 decimal places), if they exist, using either numerical or graphical evidence. If a limit does not exist, write DNE.

SCORE: 10 / 11 POINTS

$\lim_{x \rightarrow 1} \frac{\sqrt{50-x}-7}{\sqrt{x+3}-2} = \underline{-.28} \quad 2$

$\lim_{x \rightarrow 3} \frac{\ln(x^2-8)}{x-3} = \underline{6} \quad 3$

$\lim_{x \rightarrow 0} \tan^{-1}\left(\frac{1}{x}\right) = \underline{DNE} \quad 2$

$\lim_{x \rightarrow 0} \tan^{-1}\left(\frac{1}{x^2}\right) = \underline{1.57} \quad 3$