GROUP NAME: CSC

Logo:

Date: 12/9

Topics: Midterm Review

Student Names (First and Last)

Speaker/Presenter: Courtney Crawford

Writer/Prep: Stephen J Smith

QC/Leader: Cornea Douglas

Instructions: Midterm #1

1. What is Calulus? The Study of Change

Give a one word description for the instantaneous rate of change? Derivative

Evaluate the expression zero times infinity?

$0 \cdot \infty =$ ~~0 or ∞~~ or ~~3~~ or DNE

Could be anything

GROUP NAME: IRISH MATH BOMBS **Logo:** 	**Student Names (First and Last)** **Speaker/Presenter:** Bobby O'Connor
Date: _____ **Topics:**	**Writer/Prep:** Conor Krupman **QC/Leader:** BILLIAM SMITH

Instructions:

Midterm: Question 2

a) Find the cubic Regression

$1.167x^3 - 9x^2 + 21.83x - 8$

STAT EDIT

STAT CALC 6:

L1	L2
DATA	
1	6
2	9
3	8
4	10

b) Find avg. Rate of Change between $x=1$ & $x=4$

$$\frac{[(1.167(4)^3 - 9(4)^2 + 21.83(4) - 8) - (1.167(1)^3 - 9(1)^2 + 21.83(1) - 8)]}{4-1} = \frac{Y_1(4) - Y_1(1)}{4-1}$$

$= 1.33$

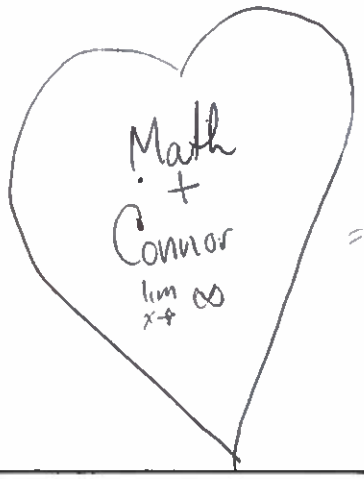
c) Find the instantaneous Rate of Change at $x=2$

$\frac{dy}{dx} f(2) = -.1\overline{66}$

Y_1 = reg Eq

Calc 6: dy/dx

$x = 2$



$= (-\infty, \infty)$

WHERE in the WORLD is Carmen Sandiego?

GROUP NAME:	Student Names (First and Last)
Logo:	Speaker/Presenter:
Date:	Writer/Prep: Logan H
Topics:	QC/Leader:

Instructions: #3 Midterm

3)

Extrema

Using Calc Max Min

X = 1.95 Max(1.95, 9)

X = 3.18 Min(3.18, 7.9)

Calc 4: Max
Left 1.5
Right 2
Guess 2
X = 1.95.

Calc 3: Min
Left: 3
Right: 4
Guess: 4
X = 3.18

Increasing at:

$(-\infty, 1.95) \cup (3.18, \infty)$

$y'' = 0$ at $x = 2.5$

with Calc intersect

$Y_1 = nderiv(nderiv(\$1, X, X), X, X)$ neg. Eg.

$Y_2 = 0$

Calc 5: Intersect
<enter> <enter> <enter>

GROUP NAME: Apples 2 Apples	Student Names (First and Last)
Logo:	Speaker/Presenter:
Date: 12/09/13	Writer/Prep: ANNA S
Topics: MIDTERM	QC/Leader:

Instructions: #4 Use the δ-ε definition of limits to find δ for the limit: $\lim_{x \to 3} 2x+11$ given $\varepsilon = 0.01$

$\lim_{x \to 3} 2x+11 = 17$

$|f(x) - L| < \varepsilon$, when $|x-3| < \delta$

$|2x+11-17| < \varepsilon$

$|2x-6| < \varepsilon$

$2|x-3| < \varepsilon \quad | :2$

$|x-3| < \frac{\varepsilon}{2}$

$\delta = \frac{\varepsilon}{2} = \frac{0.01}{2} = 0.005$

GROUP NAME: Wolf Pack	**Student Names (First and Last)**
Logo:	**Speaker/Presenter:** DC
Date: 12/9/13	**Writer/Prep:** Jared S.
Topics:	**QC/Leader:** Quay

Instructions: # 5

When is the function $f(x) = \frac{x^2-2x+1}{x^2-1}$ continuous?

$f(x) = \frac{(x-1)(x-1)}{(x-1)(x+1)}$

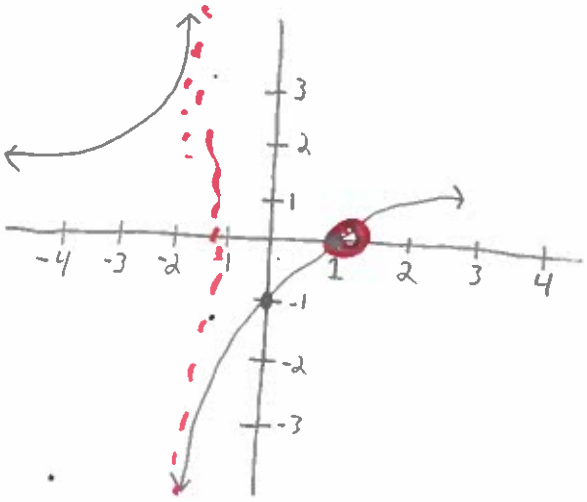
$x \neq 1, -1$ $\quad (-\infty, 1) \cup (-1, 1) \cup (1, \infty)$

Where is the function removably discontinuous?

hole @ $x = 1$ is removable

$\frac{x^2-2x+1}{x^2-1}$ $\quad \frac{n}{n}$ $\quad n = n$, $y = 1$

Graph the function:



x	f(x)
.9	-.0526
.99	-.005
1.1	.04762
1.01	.00498
0	1
-2	3

PROF. PORTER

MATH CLASSWORK

GROUP NAME: Time Is Money	Student Names (First and Last)
Logo: 	Speaker/Presenter: Angelika Mazurek
	Writer/Prep Shiv Singh
Date: 12/9/13	QC/Leader: Eugenio Pelaez
Topics:	

Instructions:

6

$\lim_{x \to 0} \frac{\sin(4x)}{5x}$ $x = .1, .01,$ and $.001$

① $\frac{\sin 4(.1)}{5(.1)} = .7788366846.$

② $\frac{\sin 4(.01)}{5(.01)} = .7997866837.$

③ $\frac{\sin 4(.001)}{5(.001)} = .7999978667.$

$Y_1 = \sin(4x)/(5x)$

Table.

.1	.77..
.01	.79...
.0001	.799..
−.0001	.800...

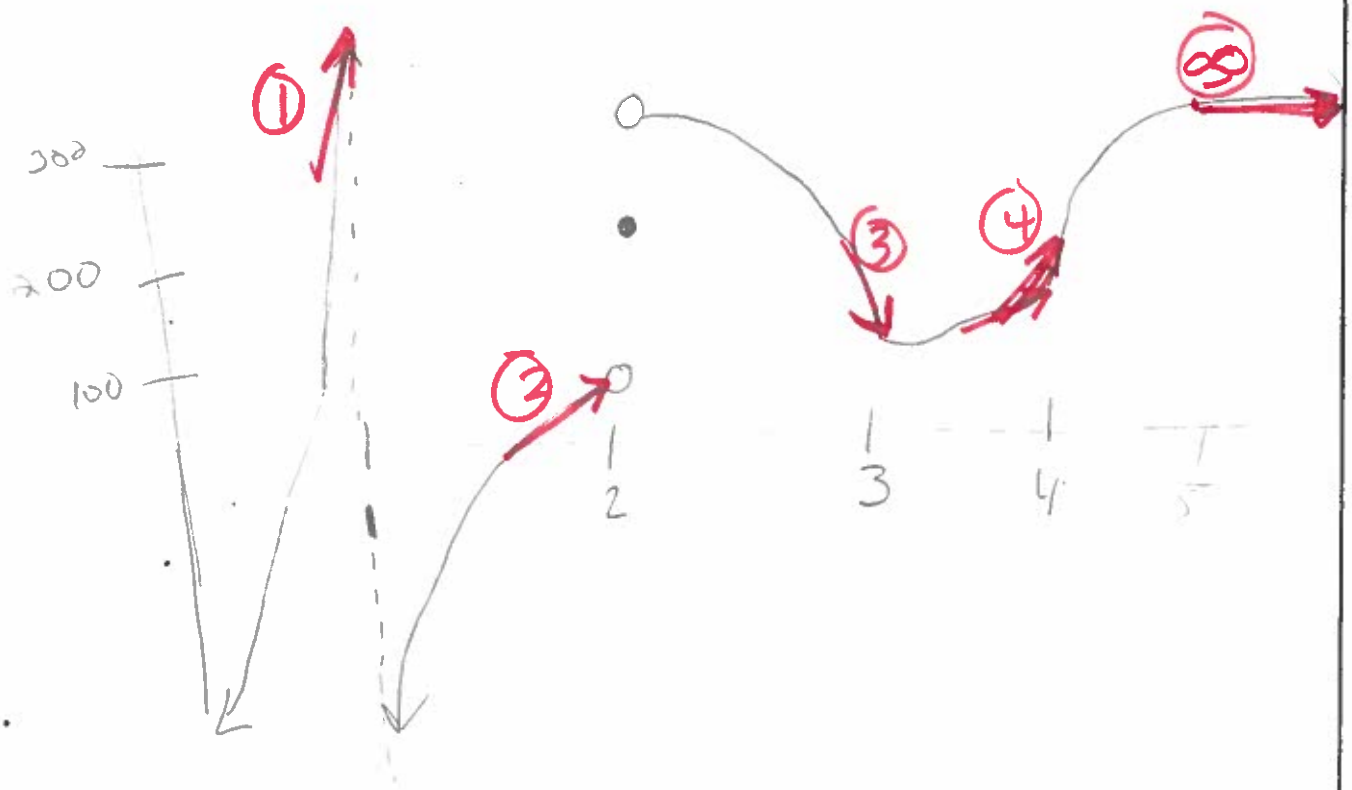
.8

GROUP NAME:	Student Names (First and Last)
Logo:	Speaker/Presenter: Kiersten
Date:	Writer/Prep: Nicole Pouncey
Topics:	QC/Leader:

Instructions:

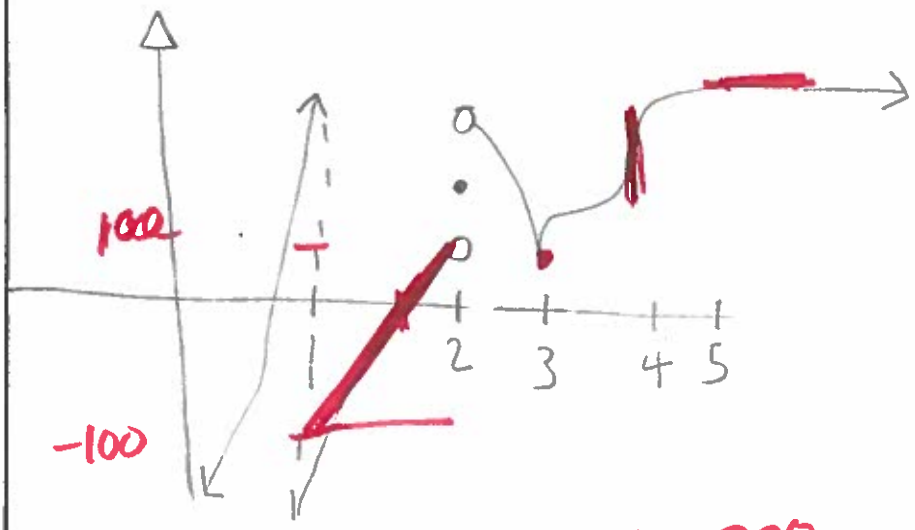
#7

a	1	2	3	4	∞
$\lim_{x \to a} f(x)$	DNE	~~DNE~~ 100	100	200	300



GROUP NAME:	Student Names (First and Last)
Logo:	Speaker/Presenter: _____
Date: _____	Writer/Prep: _____
Topics:	QC/Leader: _____

Instructions: Midterm # 8



$\frac{\Delta y}{\Delta x} = \frac{200}{1}$

1.5: ~~0~~ +200

2: DNE. } NOT CONTINUOUS

3: DNE } CORNER

4: DNE } CUSP.

∞: 0

GROUP NAME:	Student Names (First and Last)
Logo:	Speaker/Presenter: Kevin
Date:	Writer/Prep: Aidan
Topics: No 9.	QC/Leader:

Instructions:

9) find $y'(0)$ and $y''(0)$ for $3x^2+7x+2e^{3x}$

$y' = 6x+7-6e^{3x}$

$y'(0) = 6(0)+7-6e^{3(0)}$

$y'(0) = 0+7-6(1)$

$y'(0) = 1$

$y' = 6x+7-6e^{3x}$

$y''(0) = 6+16e^{3x}$

$y''(0) = 6-16e^{3(0)}$

$y''(0) = 6-16$

$y''(0) = -12$

PROF. PORTER

MATH CLASSWORK

GROUP NAME: Time Is Money	Student Names (First and Last)
Logo: 	Speaker/Presenter: Angelika Mazurek
	Writer/Prep Shiv Singh
Date: 12/9/13	QC/Leader: Eugenio Pelaez
Topics:	

Instructions:

(10)

(I) ① Limit exists *
② $f(a) = f(x)$
③ $\lim_{x \to a}$

} CONDITIONS FOR CONTINUITY.

* Limit Exists

$\lim_{x \to a^+} f(x) = \lim_{x \to a^-} f(x)$

(II)

$$f(x) = \begin{cases} Ax^2 - 5 & x < 1 \\ x^3 + 2 & x \geq 1 \end{cases}$$

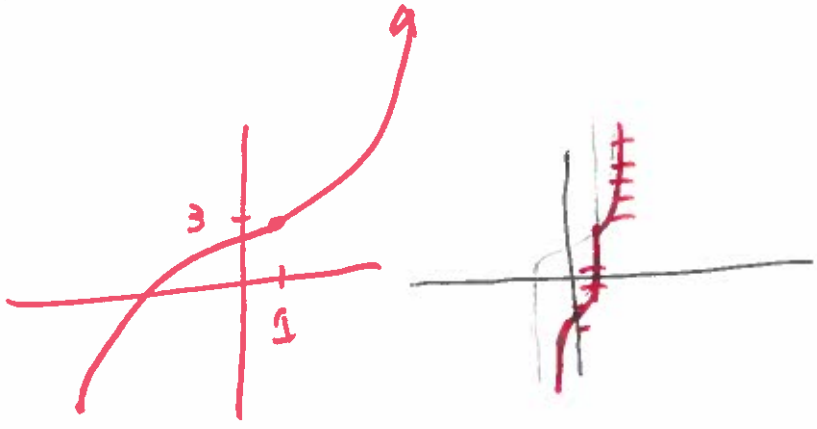
$\lim_{x \to 1^-} f(x) = \lim_{x \to 1^+} f(x)$

$Ax^2 - 5 = x^3 + 2$

$A - 5 = 3$

$A = 8$

(III)



GROUP NAME: WOLFPACK	Student Names (First and Last)
Logo:	Speaker/Presenter: Quay
Date: DEC. 9TH	Writer/Prep: Jared
Topics: MID TERM	QC/Leader: DC

Instructions: #11

IF $y=(\sin(3x))^x$

FIND y' by LOG. DIFF.

$$\ln y = \ln(\sin(3x))^x = x\ln(\sin(3x))$$

$$\frac{1}{y}y' = \ln(\sin(3x)) + x\frac{1}{\sin(3x)}\cdot 3\cdot\cos(3x)\cdot$$

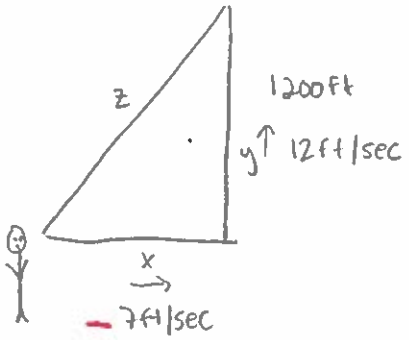
~~$(\sin(3x))^x$~~

$$\frac{1}{(\sin(3x))^x}y' = \ln(\sin(3x)) + \frac{3x\cos(3x)}{\sin(3x)}$$

$$y' = (\sin(3x))^x\left[\ln(\sin(3x)) + \frac{3x\cos(3x)}{\sin(3x)}\right]$$

GROUP NAME: The Scientists	**Student Names (First and Last)**
Logo:	**Speaker/Presenter:** Nirou Pownall
Date:	**Writer/Prep:** Donn C.
Topics:	**QC/Leader:** Kiersten Hendrickson

Instructions: 12 Balloon Problem



$x = 1000$ ft $\quad dx/dt = 7$ ft/sec

$y = 1200$ ft $\quad dy/dt = 12$ ft/sec

$z = 1562$ ft $\quad dz/dt = ?$

Finding z

$x^2 + y^2 = z^2$

$1000^2 + 1200^2 = z^2$

$z^2 = 2440000$

$z = 1562$

$$\Rightarrow 2x\frac{dx}{dt} + 2y\frac{dy}{dt} = 2z\frac{dz}{dt}$$

$$\frac{dz}{dt} = \frac{2x\frac{dx}{dt} + 2y\frac{dy}{dt}}{2z}$$

$$\frac{dz}{dt} = -\frac{14000 + 28800}{3124}$$

$$\frac{dz}{dt} = [redacted]\ \text{ft/sec} \quad 4.73$$

GROUP NAME:	Student Names (First and Last)
Logo:	Speaker/Presenter: Angelika
Date: 12/9/13	Writer/Prep: Shiv
Topics:	QC/Leader: Eugene

Instructions:

(14)

$L = 5(\pm 0.05)$

$w = 10(\pm 0.005)$

$A = L \times w$

$A = L \times W$

$dA = L\,dw + w\,dL$

~~$dA = dLw + dwL$~~

$= 5(\pm 0.005) + 10(\pm 0.05)$

$= \pm(.025 + .5)$

$= \pm .525$

$\therefore A = L \times w$

$= 5 \times 10$

$= 50$

$\therefore 50 \pm .525$

EXTRA

$\Rightarrow \frac{.525}{50} \times 100 = 1.05\%$

$\%\ \text{Error} = \frac{\text{Error}}{\text{Value}} \times 100\ \%$

$\therefore = \frac{.525}{50} \times 100 = 1.05\%$