

GROUP NAME:	Student Names (First and Last)
Logo:	Speaker/Presenter: <u>camp mutual</u>
Date: _____	Writer/Prep: <u>Sara Z.</u>
Topics:	QC/Leader: _____

Instructions: #2

Given the data (1,5), (2,7), (3,10).

- Find the avg. rate of change between $x=1$ and $x=3$

$$\frac{\Delta y}{\Delta x} = \frac{y_2 - y_1}{x_2 - x_1} = \frac{10 - 5}{3 - 1} = \boxed{\frac{5}{2}}$$

- Find Exp
 $y = ab^x$

Stat 1: Edit $\frac{4}{1} \frac{12}{3} \frac{5}{7} \frac{10}{10}$ Graph STAT \rightarrow CALC 0: Exp Reg

$a = 3.52 \dots$ $b = 1.41 \dots$

$y = (3.52 \dots)(1.41 \dots)^x$

- Find inst. rate of change @ $x=2$

$\frac{dy}{dx}$ or $\lim_{h \rightarrow 0} \frac{f(x+h) - f(x)}{h}$ $y =$ $\boxed{\text{N/AES}}$ $5: \rightarrow \rightarrow$ $1: \text{center}$ \rightarrow $\boxed{\text{Graph}}$
 $\text{CALC } 6: dy/dx$ $x=2$ $y = 7.047 \dots$
 (enter)

$dy/dx = 2.82 \dots$

GROUP NAME:

Student Names (First and Last)

Logo:

Speaker/Presenter: Thomas Yeager

Date: _____

Writer/Prep: Derrick X

Topics:

QC/Leader: _____

Instructions:

3. Find $\lim_{x \rightarrow 2} 5x + 7$

$$f(x) = 5x + 7$$

$$f(2) = 5(2) + 7$$

$$f(2) = 17$$

$$|f(x) - L| < \epsilon$$

$$|5x + 7 - 17| < \epsilon$$

$$|5x - 10| < \epsilon$$

$$5|x - 2| < \epsilon$$

$$= |x - 2| < \frac{\epsilon}{5} = \delta$$

GROUP NAME: BALLS

Logo: _____

Date: _____

Topics: _____

Student Names (First and Last)

JAMES G, GABE M, ERIC M

Speaker/Presenter: _____

Writer/Prep: _____

QC/Leader: _____

Instructions:

#4

Evaluate the limit $\lim_{x \rightarrow 2} \frac{x^2 - 5x + 6}{x^2 - 4}$

$$= \lim_{x \rightarrow 2} \frac{(x-3)(\cancel{x-2})}{(x+2)(\cancel{x-2})}$$

$$= \lim_{x \rightarrow 2} \frac{(x-3)}{(x+2)}$$

$$= \frac{\lim_{x \rightarrow 2} x - 3}{\lim_{x \rightarrow 2} x + 2}$$

$$\lim_{x \rightarrow 2} x + 2$$

$$= \frac{2 - 3}{2 + 2} = -\frac{1}{4}$$

GROUP NAME: <u>Snappy Calcs</u>	Student Names (First and Last)
Logo:	Speaker/Presenter: <u>Nick Ignorato</u>
Date: <u>3/27/13</u>	Writer/Prep: <u>Alicia Pickett</u>
Topics: <u>TEST 1</u>	QC/Leader: <u>Stephen Smith</u>

Instructions: Solve.

⑤ When the functions is continuous

$$f(x) = \frac{x^2 - 5x + 6}{x^2 - 4}$$

Everywhere besides 2, -2

$$x^2 - 4 \neq 0$$

$$x \neq 2, -2$$

~~$$(-\infty, 2) \cup (2, \infty)$$~~

$$x^2 - 4$$

$$(-\infty, -2) \cup (-2, 2) \cup (2, \infty)$$

$$= 2^2 - 4$$

$$= 4 - 4 = 0$$

$$= -2^{(2)} - 4$$

$$= 0$$

GROUP NAME: <u>TAYLOR</u>	Student Names (First and Last)
Logo:	Speaker/Presenter: <u>Dan Beck</u>
Date: _____	Writer/Prep: <u>Dan Garcia</u>
Topics:	QC/Leader: <u>Sushil Imganti</u>

Instructions:

#6

$$\lim_{x \rightarrow 0} \frac{\sin(x)}{x}$$

at $x = .1, .01, .001$

Calc $\rightarrow y_1 = \frac{\sin(x)}{x}$

x	y
.1	0.9999999999999999
.01	0.9999999999999999
.001	0.9999999999999999

$$y_1 = \sin(x)/x$$

↳ because
calc. is in
degrees!

$$\lim_{x \rightarrow 0} \frac{\sin x}{x} = \frac{0}{0} \text{ LHR}$$

$$\lim_{x \rightarrow 0} \frac{\cos x}{1} = \frac{1}{1} = 1$$

<p>GROUP NAME:</p> <p>Logo:</p>	<p>Student Names (First and Last)</p> <p>Speaker/Presenter: <u>Don Beck</u></p>
<p>Date: _____</p> <p>Topics:</p>	<p>Writer/Prep: <u>Don Garcia</u></p> <p>QC/Leader: <u>Sushil Inajanti</u></p>

Instructions:


7

$$f(x+h) = (x+h)^2 + 3(x+h) - 12$$

$$\begin{array}{ccccccc}
 x^2 & + & 2xh & + & h^2 & + & 3x & + & 3h & - & 12 \\
 x^2 & & & & & & 3x & & & & -12
 \end{array}$$

$$h^2 + 3h + 2xh$$

$$\begin{array}{r}
 \cancel{h(h+2x+3)} \\
 \hline
 h \\
 2x+3
 \end{array}$$

GROUP NAME: <u>Busy Bees</u> Logo: 	Student Names (First and Last) Speaker/Presenter: <u>Donna Nelson-Hubbard</u>
Date: <u>3/27/3</u> Topics:	Writer/Prep: <u>Nishane Carter</u> QC/Leader: <u>Comcrista Martin</u>

Instructions:

$$\#7 \quad f(x) = x^2 + 3x - 12$$

$$f(x+h) - f(x) =$$

$$(x+h)^2 + 3(x+h) - 12 - (x^2 + 3x - 12) =$$

$$x^2 + 2xh + h^2 + 3x + 3h - 12 - x^2 - 3x + 12 =$$

$$2xh + h^2 + 3h \rightarrow \lim_{h \rightarrow 0} \frac{2xh + h^2 + 3h}{h} = f'(x)$$

$$\lim_{h \rightarrow 0} 2x + h + 3 = 2x + 0 + 3 = 2x + 3$$

$$\frac{(2x + h + 3)h}{h}$$

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Topics:

QC/Leader: _____

Instructions:

8

$p(t) = t(5 - 2t) + 7$ represents the high of a ball at time t . Evaluate the function at 0 and 1 and use the information to find the average speed of the ball between $t=0$ and $t=1$.

$$\begin{aligned} \text{Ave rate of ch.} &= \frac{f(1) - f(0)}{1 - 0} = \frac{(1(5 - 2(1)) + 7) - (0(5 - 2(0)) + 7)}{1 - 0} \\ &= \frac{10 - 7}{1} = \frac{3}{1} = 3 \end{aligned}$$

Find the instantaneous speed at $t=1$ for this problem

$$p(t) = t(5 - 2t) + 7 = -2t^2 + 5t + 7$$

$$p'(t) = -4t + 5$$

$$p'(1) = -4(1) + 5 = -4 + 5 = 1$$

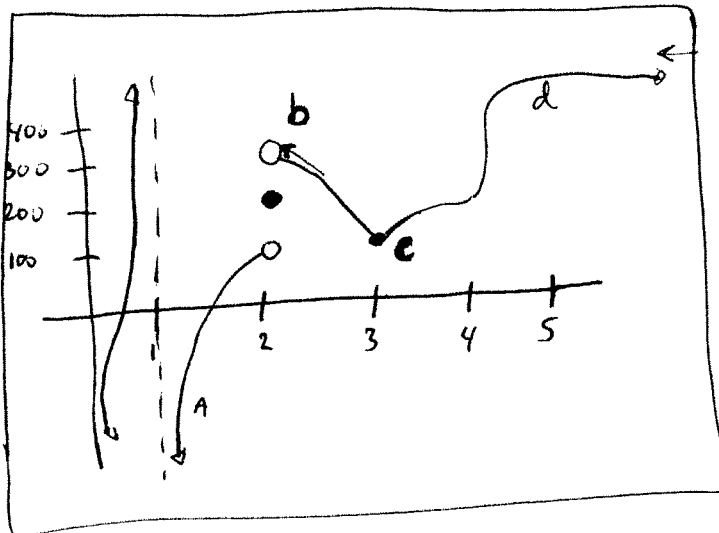
GROUP NAME: <u>Hot shots</u> Logo: _____ Date: _____ Topics: _____	Student Names (First and Last) _____ Speaker/Presenter: <u>OKSANA POBEREZHA</u> Writer/Prep: <u>Amy Mueller</u> QC/Leader: _____
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Instructions:

#9 ✓ #10

$a =$	1	2	3	4	∞
$\lim_{x \rightarrow a^+} f(x)$	(A) $-\infty$	(B) 300	(C) 100	(D) 400 or Anythin 200-400	(E) DNE

$\lim_{x \rightarrow \infty^+} f(x) = \text{DNE}$



$e = \text{no function on graph}$
 $f(2) = 200$

$x =$	1	2	3	4	∞
$f'(x)$	DNE	DNE	DNE	DNE	0

V.A. Also Discontinuous Discont. corner cusp Horizontal.

<p>GROUP NAME: <u>BALLS</u></p> <p>Logo:</p>	<p>Student Names (First and Last) <u>JAMES G., GABE M., ERIC M.</u></p> <p>Speaker/Presenter: _____</p>
<p>Date: _____</p> <p>Topics:</p>	<p>Writer/Prep: _____</p> <p>QC/Leader: _____</p>

Instructions:

11

Find dy/dx of $\sqrt{x} + \cos(2\pi/7)$

$$f'(x) = \frac{1}{2}x^{-\frac{1}{2}} = \frac{1}{2}\left(\frac{1}{x^{\frac{1}{2}}}\right) = \frac{1}{2x^{\frac{1}{2}}} = \boxed{\frac{1}{2\sqrt{x}}}$$

Find $y'(0)$ and $y''(0)$

$$y = 3x^2 + 7x - 2$$

① $Y_1 = 3x^2 + 7x - 2$

$$y' = 6x + 7 \quad y'(0) = 7$$

$$y'' = 6$$

GRAPH

2ND **CALC** 6: dy/dx

MATH 8: VARS \rightarrow 1:1:

$$Y_2 = nDeriv(Y_1, x, x)$$

$$Y_3 = nDeriv(Y_2, x, x)$$

TABLE

x	Y_1	Y_2	Y_3
0	-2	7	6
		\swarrow	\downarrow
	$y'(0) = 7$		$y''(0) = 6$

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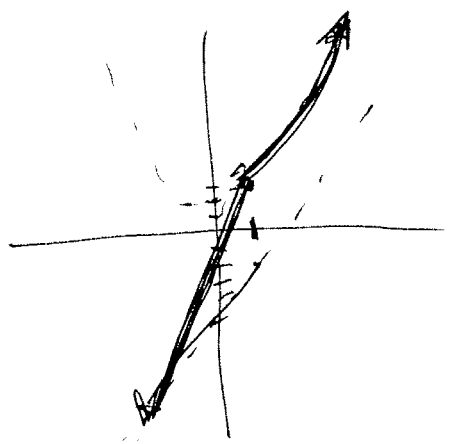
Instructions: #12

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

$$\lim_{x \rightarrow 1^+} f(x) = \lim_{x \rightarrow 1^+} x^2 + 2 = 3$$

$$\lim_{x \rightarrow 1^-} f(x) = \lim_{x \rightarrow 1^-} Ax - 5 = A - 5$$

$$\lim_{x \rightarrow 1} f(x) = 3 = A - 5 \quad \underline{\underline{A = 8}}$$



$$y_1 = 8x - 5$$

$$y_2 = x^2 + 2$$

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Instructions:

#13

$$a) \lim_{x \rightarrow \infty} \frac{3x^{200} + 5x + b}{5x^{2000} - 9} = 0$$

$$b) \lim_{x \rightarrow \infty} \frac{3x^{200} + 5x + b}{5x^{200} + 9} = \frac{3}{5}$$

$$c) \lim_{x \rightarrow \infty} \frac{3x^{2000} + 5x + b}{5x^{200} - 9} = ?$$

$$a) \lim_{x \rightarrow \infty} \frac{\frac{3}{x^{1800}} + \frac{5}{x^{1999}} + \frac{6}{x^{2000}}}{5 - \frac{9}{x^{2000}}} = \frac{0}{5} = 0$$

$$c) \lim_{x \rightarrow \infty} \frac{3x^{1800} + \frac{5}{x^{199}} + \frac{6}{x^{200}}}{5 - \frac{9}{x^{2000}}} = \lim_{x \rightarrow \infty} \frac{3}{5} x^{1800} = +\infty$$