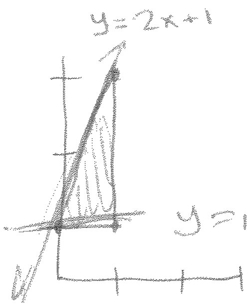
GROUP NAME: Logo: Dougmakers	Student Names (First and Last) Speaker/Presenter: Bagels Writer/Prep: Alana QC/Leader: PAt
Date:__________ Topics:	
Instructions: #1 Test #3	



Setup trip integral for function

$y+2x+100$ (0,1) (1,1) (1,3)

$$V=\int_0^1\int_1^{2x+1}\int_0^{y+2x+100} 1\,dz\,dy\,dx$$

GROUP NAME: Logo: iDerive	Student Names (First and Last) Speaker/Presenter: Mike M Writer/Prep: Joanna P QC/Leader: Kate M.
Date: 5/8/13 Topics:	
Instructions: Test 3 #2	Setup the integral to find the surface area of the function f(x,y) = y + 2x + 100 above the rectangular region b/w points (0,1)(1,1)(1,3)

$$\int_A = \iint_D \sqrt{1+\left(\frac{\partial z}{\partial x}\right)^2+\left(\frac{\partial z}{\partial y}\right)^2}\, dA$$

$$\int_A = \iint_D = \sqrt{2^2+1^2+1}\, dA$$

$$z = y + 2x + 100$$

$$\frac{\partial z}{\partial x} = 2$$

$$\frac{\partial z}{\partial y} = 1$$

Answer $\boxed{\int_0^1 \int_1^{2x+1} \sqrt{6}\, dy\, dx}$

GROUP NAME: Logo:	Student Names (First and Last) Speaker/Presenter: William Carter
Date:__________ Topics:	Writer/Prep: ZAHIN FARZANA QC/Leader:__________

Instructions: Final Exam (Test #3)

3

$D = \frac{M}{V}$

$$M = \int_{x=0}^{1} \int_{y=1}^{3} \int_{z=0}^{4+2x+100} 2xy \, dV$$

GROUP NAME: Mechanical Engineers Logo:	Student Names (First and Last)
	Speaker/Presenter: Suraj Porangada
Date: 8/5/2013	Writer/Prep: Nick Chiovani
Topics: #4, Test 3	QC/Leader: Renzo Changanaqui

Instructions: (4) Give the integrals to find the center of gravity for the region under. the function $f(x,y) = y+2x+100$ and above the rectangular region between the points (0,1) (1,1) (1,3), when the density is $2xy$

$$M_{xy} = \int_0^1 \int_1^{2x+1} \int_0^{y+2x+100} 2xyz \, dv$$

$$\bar{z} = \frac{M_{xy}}{M}$$

$$M_{yz} = \int_0^1 \int_1^{2x+1} \int_0^{y+2x+100} 2x^2 y \, dv$$

$$\bar{x} = \frac{M_{yz}}{M}$$

$$M_{zx} = \int_0^1 \int_1^{2x+1} \int_0^{y+2x+100} 2xy^2 \, dv$$

$$\bar{y} = \frac{M_{zx}}{M}$$

GROUP NAME: Engineers

Logo: X

Date:

Topics: Test 3

Student Names (First and Last)

Speaker/Presenter: Kyle

Writer/Prep: Aravl

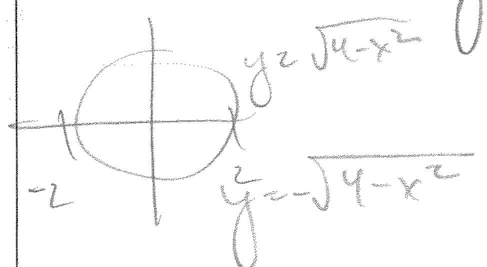
QC/Leader: Charlie

Instructions: Set up integral

5)

$$f(x,y) = y + 2x + 100$$

circle $r = 2$



$$V = \int_{-2}^{2} \int_{-\sqrt{4-x^2}}^{\sqrt{4-x^2}} y + 2x + 100 \, dy\, dx$$

GROUP NAME: The Dough Makers	Student Names (First and Last)
Logo:	Speaker/Presenter: Patricia
Date:________	Writer/Prep: Alana
Topics:	QC/Leader: Viagels
Instructions: Test 3 #6	

Find the volume for the region under the function $f(x,y) = y + 2x + 100$ and above the circular region of radius 2 and centered at the origin using polar coordinates

$x = r\cos\theta$
$y = r\sin\theta$

$$\int_0^2 \int_0^{2\pi} r(\cancel{r}\sin\theta + 4\cancel{r}\cos\theta + 100)\, d\theta\, dr$$

$$\int\int 2r\sin\theta + 4r\cos\theta + 100r \, d\theta\, dr$$

$$\int \left[-2r\cos\theta + 4r\sin\theta + 100r\theta \Big|_0^{2\pi}\right] dr$$

$$\int_0^2 -2r + 200\pi r - (-2r)\, dr$$

$$\int_0^2 200\pi r \, dr$$

$$100\pi r^2 \Big|_0^2 = \boxed{400\pi}$$

GROUP NAME:

Logo:

Date: 5/8/13

Topics: #7

Student Names (First and Last)

Speaker/Presenter: Iconah Hall

Writer/Prep: Eric

QC/Leader:

Instructions: Evaluate the integral below by first using change of variables, finding the Jacobian and then solving

$$\iint_R (3x-2y)\,dA \quad \text{when } x = u+2v \ \& \ y = 3u-2v$$

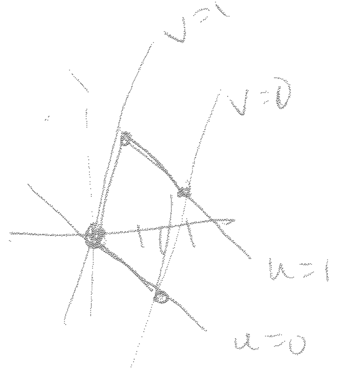
and the region is b/w the pts (0,0), (3,1), (2,-2), (1,3).

$\frac{\partial x}{\partial u} = 1 \qquad \frac{\partial y}{\partial u} = 3$

$\frac{\partial x}{\partial v} = 2 \qquad \frac{\partial y}{\partial v} = -2$

$$J = \begin{vmatrix} 1 & 2 \\ 3 & -2 \end{vmatrix} = |-2-6| = +8$$

$$\begin{vmatrix} \frac{\partial x}{\partial u} & \frac{\partial y}{\partial v} \end{vmatrix}$$



$$\iint_R (3x-2y)\,dA$$

$$= +8\int_0^4\int_{-8}^0 (3u+6v) - 2(3u-2v)\,du\,dv$$

$$= +8\int_0^4\int_{-8}^0 3u+6v-6u+4v\,du\,dv$$

$$= +8\int_0^4\int_{-8}^0 -3u+10v\,du\,dv$$

$$= +8\int_0^4 \left[-\frac{3}{2}u^2+10uv\right]_{-8}^0 dv$$

$$= +8\int_0^4 \underline{\qquad\qquad} = 28$$

GROUP NAME: Compsci

Logo:

Date: 5/8/13

Topics:

Student Names (First and Last)

Speaker/Presenter: Konah Hall

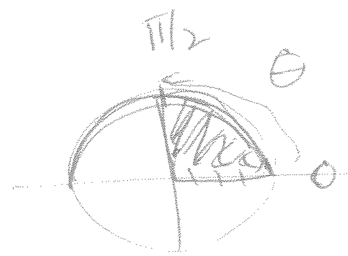
Writer/Prep:

QC/Leader: Eric Zhuang

Instructions: 8) test 3

$$\int_0^4\int_0^{\sqrt{16-x^2}}\int_{-\sqrt{16-x^2-y^2}}^{\sqrt{16-x^2-y^2}} (x^2+y^2+z^2)\,dV$$

$$\int_0^4\int_0^{\frac{\pi}{2}}\int_0^{\pi} \rho^4 \sin\phi \, d\rho\, d\theta\, d\phi$$



GROUP NAME: Engineers

Logo: X

Date:__________

Topics: I'm hungry

Student Names (First and Last)

Speaker/Presenter: Arhan R

Writer/Prep: Kyle G

QC/Leader: Charlie N

Instructions: Evaluate the inner two integrals

#9

$$\int_0^1\int_0^x\int_0^{x+2}\int_0^{y+x}\cos(w)\,dw\,dz\,dy\,dx$$

$$\int_0^1\int_0^x\int_0^{x+2}\sin(y+x)-1\,dz\,dy\,dx$$

$$\int_0^1\int_0^x \sin(y+x)z-z\Big|_0^{x+2}\,dy\,dx$$

$$\int_0^1\int_0^x(\sin(y+x)-1)(x+2)\,dy\,dx$$

GROUP NAME: [illegible]	Student Names (First and Last)
Logo:	Speaker/Presenter: Michael M
Date: 5-8-13	Writer/Prep: Kate M.
Topics:	QC/Leader: Joanna P.

Instructions: # 10

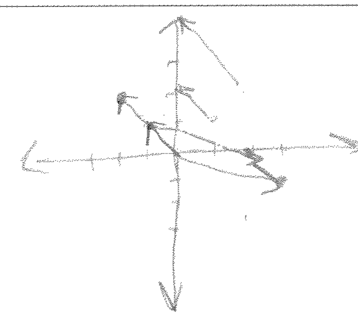
$f(x,y) = xy - x^2$

$F(x,y) = \langle y - 2x, x \rangle$

$F(1,1) = \langle -1, 1 \rangle$

$F(2,2) = \langle -2, 2 \rangle$

$F(-1,1) = \langle 3, -1 \rangle$



$\int_C F(x,y) \cdot ds$ $\quad x = 4\cos t \quad 0 \le t \le \pi \quad x' = -4\sin t$

$y = 4\sin t - 4 \quad\quad y' = 4\cos t$

$$\int_0^{\pi} \langle 4\sin t - 4 - 8\cos t, 4\cos t \rangle \cdot \langle -4\sin t, 4\cos t \rangle \, dt$$

$$= \int_0^{\pi} -16\sin^2 t + 16\sin t + 32\sin t\cos t + 16\cos^2 t \, dt = 54.3$$

$f(-2,0) - f(0,0)$

$-4 - 0 = \underline{-4}$

GROUP NAME: EngeeS Logo:	Student Names (First and Last) Speaker/Presenter: ______ Writer/Prep: Felipe QC/Leader: Brendan
Date: 5/8/13 Topics:	

Instructions:
Test #3 , # 11

line integral of

$f(x,y) = x - y^2$ over semicircle from $(-1,0)$ to $(1,0)$

$x = \cos t$
$y = \sin t$

$\pi \le t \le 2\pi$

$\int_c F(x,y)\,ds \qquad ds = \sqrt{(x'(t))^2 + (y'(t))^2}$

$x = \cos t \qquad x'(t) = -\sin t \qquad ds = \sqrt{\sin^2 t - \sin^2(2t)}$

$y^2 = \sin^2 t \qquad y'(t) = -\sin(2t)$

$y' = -\sin t$
$y' = \cos t$

$\int_c x - y^2\,ds = \int_0^{\pi} \cos t - \sin^2 t \sqrt{\sin^2 t - \sin^2(2t)}\,dt$

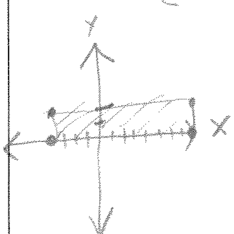
$= -1.74521$

$\int_{\pi}^{2\pi} (\cos t) - (\sin^2 t) \sqrt{x'^2 + y'^2}\,dt$

$= \#$

GROUP NAME: Engees Logo:	Student Names (First and Last) Speaker/Presenter:
Date: 5/8/13 Topics: Green's Theorem	Writer/Prep: Brendan QC/Leader: Felipe
Instructions: Test 3 #12	

12.) $\int_C \underbrace{(x+3y)}_{M}dx + \underbrace{(2x-y)}_{N}dy$, $(-4,0)$ to $(8,0)$ to $(8,2)$ to $(-4,2)$ to $(-4,0)$



$-4 \leq x \leq 8$, $0 \leq y \leq 2$

$M_y = 3$

$N_x = 2$

$$\oint M\,dx + N\,dy = \iint_D \left(\frac{\partial N}{\partial x} - \frac{\partial M}{\partial y}\right) dA$$

$$= \int_0^2 \int_{-4}^8 (2-3)\,dx\,dy \longrightarrow -24$$

$$= \int_0^2 (-x)\Big|_{-4}^{8} dy = \int_0^2 (-(8))-(-(-4))\,dy$$

$$= \int_0^2 (-12)\,dy = (-12y)\Big|_0^2 = (-12(2)) = -24$$