GROUP NAME: Engineers

Logo: X

Date: 2/13/13

Topics: Where is Kyle?

Student Names (First and Last)

Speaker/Presenter: Charlie

Writer/Prep: ARamy N

QC/Leader: Charlie Neumeyer

Instructions: Practice test : # 1

Points A (3,1,2)
B (-2,0,1)
C (0,2,0)

$\vec{BC} \langle 2,2,-1 \rangle = \vec{v}$

$\vec{AC} \langle -3,1,-2 \rangle = \vec{w}$

$\cos^{-1} \frac{\vec{v} \cdot \vec{w}}{|\vec{v}||\vec{w}|} = \cos^{-1} \frac{(-6+2+2)}{3\sqrt{14}} =$

$\measuredangle ACB \approx 100.3\overset{\circ}{...}$

$|\vec{v}| = \sqrt{4+4+1} = 3$

$|\vec{w}| = \sqrt{3^2+1^2+2^2} = \sqrt{14}$

GROUP NAME: Dough Makers
Logo:

Student Names (First and Last)
Speaker/Presenter: Brian Pagels
Writer/Prep: Alan
QC/Leader: Pat

Date: Today Feb 12th
Topics: 12.5 Topic

Instructions: Given the points A(3,1,2), B(-2,0,1) & C(0,2,0), find the parametric equation of the line containing AB. Does $\overrightarrow{AB}$ cross $s(t) = \langle -14t, 2-6t, 2-4t \rangle$

$\langle x, y, z \rangle = \langle x_1, y_1, z_1 \rangle + t\langle x_2, y_2, z_2 \rangle$ (point + t·vector)

$\overrightarrow{AB} = B - A = \langle -2-3, 0-1, 1-2 \rangle = \langle -5, -1, -1 \rangle$

$\langle x, y, z \rangle = \langle 3, 1, 2 \rangle + t\langle -5, -1, -1 \rangle$

$\therefore$

$x = 3 - 5t$
$y = 1 - t$
$z = 2 - t$

$s(t) = \langle -14t, 2-6t, 2-4t \rangle$

$\overrightarrow{AB}$: $x_1 = 3-5t$, $y_1 = 1-t$, $z_1 = 2-t$

$\overrightarrow{s(t)}$: $x_2 = -14s$, $y_2 = 2-6s$, $z_2 = 2-4s$

x-value: $3-5t = -14s$

y-value: $1-t = 2-6s$ | $\cdot -5$

$3-5t = -14s$
$5+5t = 30s$
$8 = 16s$
$\frac{1}{2} = s$

$3-5t = -14(\frac{1}{2})$ ←
$3-5t = -7$
$-5t = -10$
$t = 2$

z-value: $2-t \stackrel{?}{=} 2-4s$ ←
$2-2 = 2-4(\frac{1}{2})$
$0 = 0$ ✓

YES $\overrightarrow{AB}$ crosses $s(t)$

GROUP NAME: i Derive	Student Names (First and Last)
Logo: ✱	Speaker/Presenter: Kate M
Date: 2/13/13	Writer/Prep: Joanna P
Topics: Practice Test 1	QC/Leader: BOTH

Instructions: 3A) Given pts A, B, C. Find the equation of the plane containing A, B, C

3B) Given $8x+2y+4z=16$ Find intercepts and graph plane. Draw a graph of plane when x, y, z are all positive.

3a) A(3,1,2) B(-2,0,1) C(0,2,0) $\quad a(x-x_0)+b(y-y_0)+c(z-z_0)=0$

$\vec{u} = \vec{AB}$

$\langle(-2-3),(0-1),(1-2)\rangle = \langle -5,-1,-1\rangle$ ← (B − A) points

$\vec{v} = \vec{AC}$

$\langle(0-3),(2-1),(0-2)\rangle = \langle -3,1,-2\rangle$ ← (C − A) points

$$\vec{u}\times\vec{v} = \begin{vmatrix} \vec{i} & \vec{j} & \vec{k} \\ -5 & -1 & -1 \\ -3 & 1 & -2 \end{vmatrix} \begin{matrix} i & j & k \\ -5 & -1 & -1 \\ -3 & 1 & -2 \end{matrix} = \langle 3,-7,-8\rangle$$ ← cross product

Pt (-2, 0, 1)

$3(x+2)+(-7)(y-0)+(-8)(z-1)=0$

$3x+6-7y-8z+8=0$

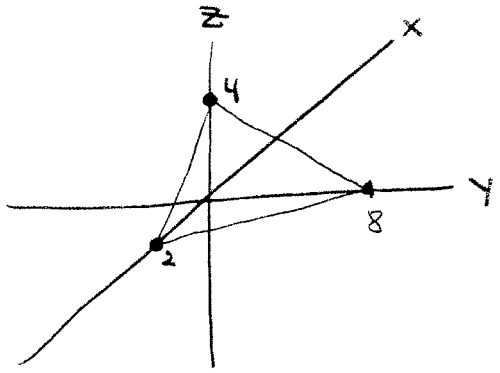
$\boxed{3x-7y-8z=-14}$

3b) $8x+2y+4z=16$

$z=0$, $y=0$: $8x+2(0)+4(0)=16$, $x=\frac{16}{8}=2$

$z=0$, $x=0$: $8(0)+2y+4(0)=16$, $2y=16 \rightarrow y=\frac{16}{2}=8$

$x=0$, $y=0$: $8(0)+2(0)+4z=16$, $4z=16$, $z=\frac{16}{4}=4$



GROUP NAME: Math Wiz Logo: + × − ÷	Student Names (First and Last) Speaker/Presenter: [illegible]
Date: 2-19-13 Topics: Practice Test	Writer/Prep: Hajun Kang QC/Leader: Michael McNulty

Instructions: # 4

$A(3,1,2)$, $B(-2,0,1)$, $C(0,2,0)$ @ $(1,-2,9)$ on plane?

$\vec{AB} = \langle -5,-1,-1 \rangle$

$\vec{BC} = \langle 2,2,-1 \rangle$

$\vec{AB} \times \vec{BC} = \begin{vmatrix} i & j & k \\ -5 & -1 & -1 \\ 2 & 2 & -1 \end{vmatrix} = 3i - 7j - 8k$

$3x - 7y - 8z = -14$

$3(x-3) - 7(y-1) - 8(z-2) = 0$ @ $(1,-2,9)$

$3(1-3) - 7(-2-1) - 8(2-2) \neq 0$ No

$d = \dfrac{|3(1) - 7(-1) - 8(0) + 14|}{\sqrt{3^2 + (-7)^2 + (-8)^2}} = \dfrac{4}{\sqrt{122}}$

Distance b/w plane and $(1,3,0)$

GROUP NAME: Engees	Student Names (First and Last)
Logo:	Speaker/Presenter: Felipe K
Date: 2/13/15	Writer/Prep: Brendan Feldman
Topics:	QC/Leader: .

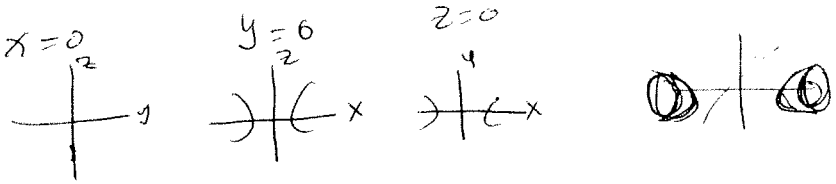
Instructions:

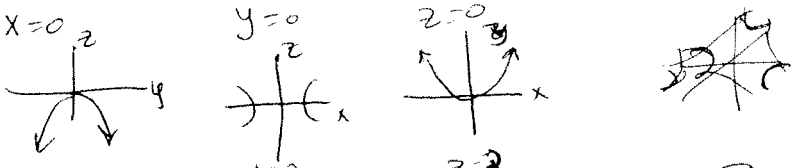
5.) identify the surface described by following equations

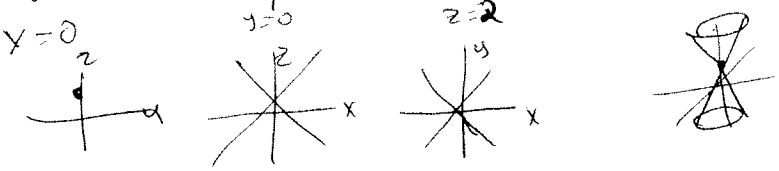
a.) $\frac{x^2}{16} - \frac{y^2}{9} - \frac{z^2}{4} = 1$ 2-sheeted hyperboloid

b.) $\frac{x^2}{16} - \frac{y}{9} - \frac{z^2}{4} = 1$ hyperbolic paraboloid

c.) $\frac{x^2}{16} - \frac{y^2}{9} - \frac{(z-2)^2}{4} = 0$ infinite elliptic cone

a) 

b) 

c) 

GROUP NAME: CompSci	Student Names (First and Last)
Logo:	Speaker/Presenter: Konah Hall
Date:	Writer/Prep:
Topics:	QC/Leader: Eric Zhuang

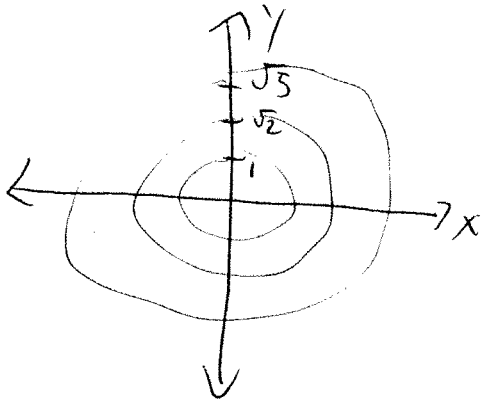
Instructions: #6

• $x^2+y^2-z^2=1$ z at 0, 1, 2

$z=0$ $x^2+y^2=1$ $r=1$

$z=1$ $x^2+y^2=2$ $r=\sqrt{2}$

$z=2$ $x^2+y^2=5$ $r=\sqrt{5}$



GROUP NAME: SEBS

Logo:

Date: 2/13/'13

Topics: Practice Exam #1 Problem

Student Names (First and Last)

Speaker/Presenter: _____

Writer/Prep: ZAHID FAREED

QC/Leader: William E. Carter, Jr.

Instructions: Find $\vec{r}(t)$ condition $\vec{r}\,'(t) = \cos t\,\vec{i} + (1-t^2)\vec{j} + e^{2t}\vec{k}$ & $\vec{r}(0) = \vec{i} - \vec{j}$

#7

$$\int \vec{r}\,'(t)\,dt = \left(\int \cos t\,dt\right)\vec{i} + \left(\int 1 - t^2\,dt\right)\vec{j} + \left(\int e^{2t}\,dt\right)\vec{k}$$

$$\vec{r}(t) = (\sin t)\vec{i} + \left(\frac{3t - t^3}{3}\right)\vec{j} + \left(\frac{e^{2t}}{2}\right)\vec{k} + \vec{C}_0 \quad \text{where } C_0 \text{ is a arbitrary constant vector}$$

$$\vec{r}(0) = \vec{r}(t=0) = 0\vec{i} + 0\vec{j} + \frac{1}{2}\vec{k} + \vec{C}_0 = \vec{r}(0) = \vec{i} + \vec{j}$$

$$\vec{C}_0 = \left(\vec{i} - 0\vec{i}\right) + \left(\vec{j} - 0\vec{j}\right) + \left(\frac{-1}{2}\right)\vec{k}$$

$$\vec{C}_0 = \vec{i} + \vec{j} + \frac{1}{2}\vec{k}$$

$$\vec{r}(t) = \left\langle \sin t + 1,\ \frac{3t - t^3}{3} + 1,\ \frac{e^{2t}}{2} + \frac{-1}{2} \right\rangle$$

check

$$\vec{r}(0) = \left\langle 0 + 1,\ 0 + 1,\ \frac{1}{2} + \frac{-1}{2} \right\rangle = \langle 1, 1, 0 \rangle$$

$$\vec{r}\,'(t) = \langle \cos t,\ 1 - t^2,\ e^{2t} \rangle$$

GROUP NAME: Mechanical Engineers Logo:	Student Names (First and Last) Speaker/Presenter: Suraj Poreagada. Writer/Prep: Mike Chiovani QC/Leader: Renzo Chacaracqui
Date: 2/13/2013. Topics: Practice Test 1	

Instructions:

(9) Given the position vector. $\vec{r}(t) = \langle 5t, 2\sin t, 2\cos t \rangle$

a) Find the acceleration at $t=0$.

b) Find the speed at $t=0$.

b) $\vec{r}(t) = \langle 5t, 2\sin t, 2\cos t \rangle$

$\vec{r}'(t) = \langle 5, 2\cos t, -2\sin t \rangle$

$\vec{r}'(0) = \langle 5, 2\cos 0, -2\sin(0) \rangle$

$\vec{r}'(0) = \langle 5, 2, 0 \rangle$

$= \sqrt{5^2 + 2^2 + 0}$

$= \sqrt{25 + 4 + 0}$

Speed $= \sqrt{29}$

a) $\vec{r}'(t) = \langle 5, 2\cos t, -2\sin t \rangle$

$\vec{r}''(t) = \langle 0, -2\sin t, -2\cos t \rangle$

$\vec{r}''(0) = \langle 0, -2\sin 0, -2\cos 0 \rangle$

$\vec{r}''(0) = \langle 0, 0, -2 \rangle = \vec{a}(0)$