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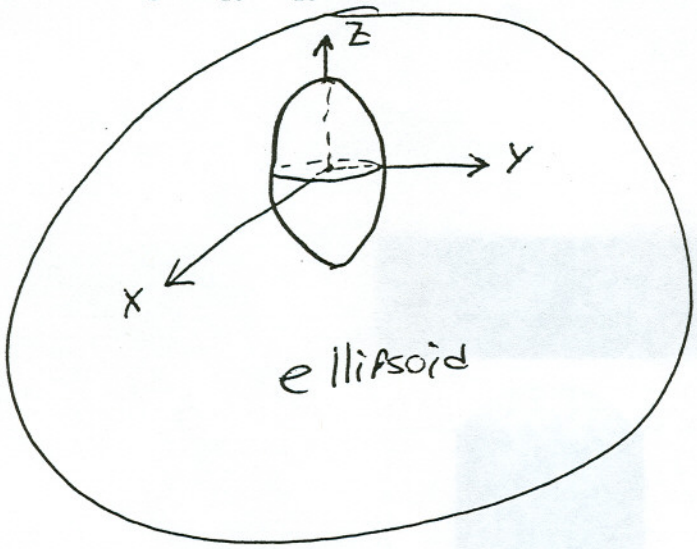
3. Graph $\frac{x^2}{9}+\frac{y^2}{16}+\frac{z^2}{25}=1$ in 3−space.



4. **(There is no partial credit for this problem. Make sure your answer is correct.)** Find the equation of the plane through $(1,2,1)$, $(1,4,3)$, and $(5,5,4)$.

$P_1=(1,4,3)$

$(5,5,4)=P_3$

$P_2=(1,2,1)$

$\overrightarrow{P_2P_1}=2\vec{j}+2\vec{k}$

$\overrightarrow{P_2P_3}=4\vec{i}+3\vec{j}+3\vec{k}$

$$\overrightarrow{P_2P_1}\times\overrightarrow{P_2P_3}=\begin{vmatrix}\vec{i}&\vec{j}&\vec{k}\\0&2&2\\4&3&3\end{vmatrix}=0\vec{i}+8\vec{j}-8\vec{k}$$

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

$+8y-8z=8$

$y-z=1$