CE-201, H.W #02

$$|\vec{F}| = \sqrt{242.7^2 + 95.7^2 + (-779.3)^2}$$

$$= \underline{821.8}$$

$$\therefore \alpha = \cos^{-1}\left(\frac{242.7}{821.8}\right) = \underline{72.82^\circ}$$

$$\beta = \cos^{-1}\left(\frac{95.7}{821.8}\right) = \underline{83.31^\circ}$$

$$\gamma = \cos^{-1}\left(\frac{-779}{821.8}\right) = \underline{161.42}$$

2-99

$$\vec{F} = \{-120\hat{i} - 90\hat{j} - 80\hat{k}\}\ lb$$

$$|\vec{F}| = 170\ lb.$$

$$\vec{u}_F = \left\{-\frac{120}{170}i - \frac{90}{170}j - \frac{80}{170}\hat{k}\right\} lb$$

$$\cos\gamma = -\frac{120}{170} = \frac{x}{34} \Rightarrow \underline{x = |-24| = 24}$$

$$\cos\beta = -\frac{90}{170} = \frac{y}{34} \Rightarrow y = |-18| = \underline{18}$$

$$\cos\gamma = -\frac{80}{170} = \frac{z}{34} \Rightarrow z = |-16| = \underline{16}$$

$$\therefore \begin{array}{l} x = 24 \\ y = 18 \\ z = 16 \end{array} \Bigg| \text{ Ans:}$$