

No.

Date

$$1. \cos^2 \alpha + \cos^2 \beta + \cos^2 \gamma = 1$$

$$\cos^2 120^\circ + \cos^2 \beta + \cos^2 60^\circ = 1$$

$$\beta = 135^\circ$$

$$\begin{aligned} \vec{F} &= 500 \times \cos 120^\circ \hat{i} + 500 \times \cos 135^\circ \hat{j} + 500 \times \cos 60^\circ \hat{k} \\ &= -250\hat{i} - 353.5\hat{j} + 250\hat{k} \end{aligned}$$

$$2. \text{BE} (4, 3, -2) \quad \text{UBE} = \frac{4}{\sqrt{29}}\hat{i} + \frac{3}{\sqrt{29}}\hat{j} + \frac{2}{\sqrt{29}}\hat{k}$$

$$F_x = \frac{4}{\sqrt{29}} \times 600 = 445.27 \text{ N}$$

$$DE = (0, 3, 0)$$

$$\text{UDE} = \frac{0}{3}\hat{i} + \frac{3}{3}\hat{j} + \frac{0}{3}\hat{k}$$

$$F_y = \frac{3}{\sqrt{29}} \times 600 = 334 \text{ N}$$

$$F_z = \frac{2}{\sqrt{29}} \times 600 = 222.63 \text{ N}$$

$$F_{DE \parallel} = 334 \times \frac{3}{3} = 334 \text{ N} \quad F_{DE \perp} = \sqrt{600^2 - 334^2} = 498 \text{ N}$$