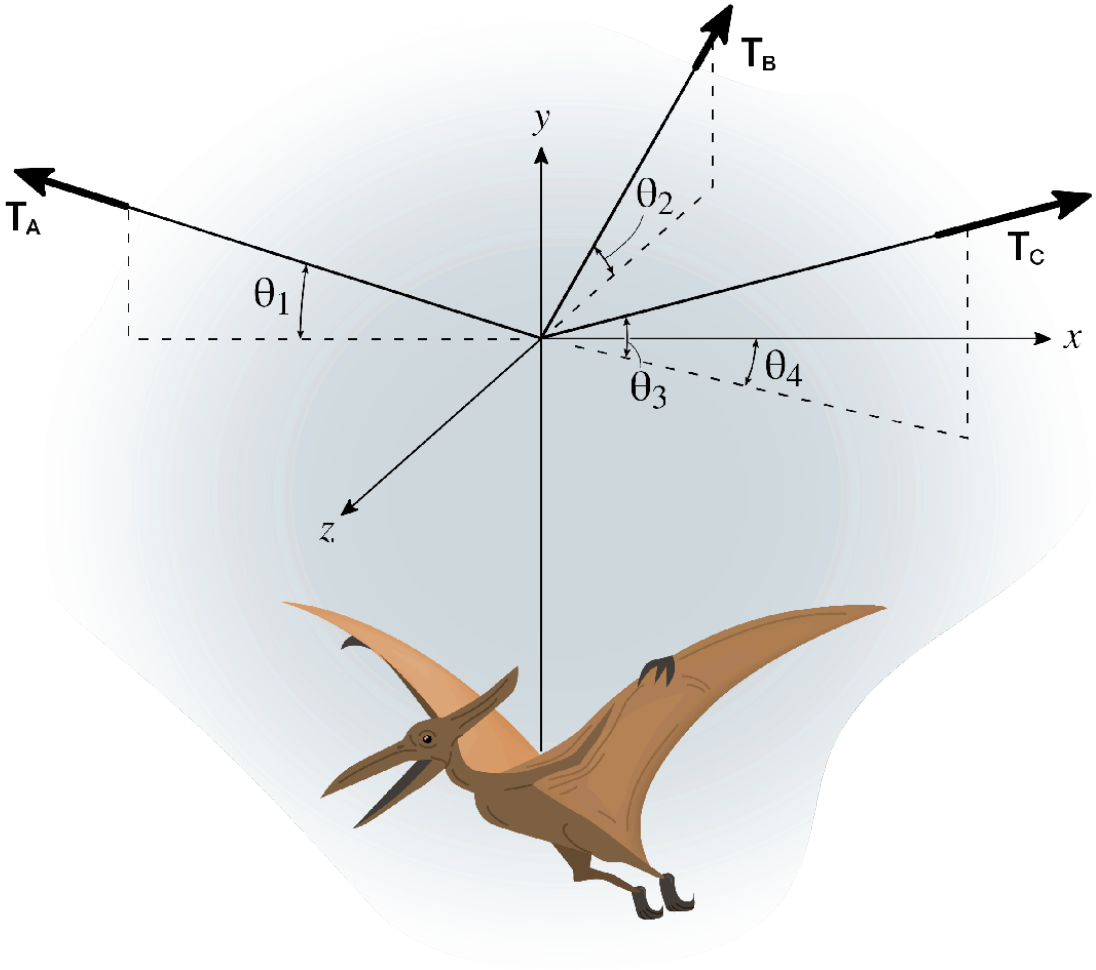

Pterry the Pterodactyl is flying when suddenly he is hit with a strange gust of wind. The gust's force can be represented by the three vectors shown above. If the three forces have magnitudes of T_A, T_B, and T_C respectively, express the three forces as cartesian vectors and find the magnitude and coordinate direction angles of the resultant force acting on Pterry. Be aware of the orientation of the axes.

$$\overrightarrow{T_A} = -T_A \cos(\theta_1)\,\hat{i} + T_A \sin(\theta_1)\,\hat{j}$$

$$\overrightarrow{T_B} = T_B \sin(\theta_2)\,\hat{j} - T_B \cos(\theta_2)\,\hat{k}$$

$$\overrightarrow{T_C} = T_C \cos(\theta_3)\cos(\theta_4)\,\hat{i} + T_C \sin(\theta_3)\,\hat{j} + T_C \cos(\theta_3)\sin(\theta_4)\,\hat{k}$$

$$F_{Rx} = T_C \cos(\theta_3) \cos(\theta_4) - T_A \cos(\theta_1)$$
$$F_{Ry} = T_A \sin(\theta_1) + T_B \sin(\theta_2) + T_C \sin(\theta_3)$$
$$F_{Rz} = T_C \cos(\theta_3) \sin(\theta_4) - T_B \cos(\theta_2)$$
$$\overrightarrow{F_R} = F_{Rx}\hat{i} + F_{Ry}\hat{j} + F_{Rz}\hat{k}$$

$$||\overrightarrow{F_R}|| = \sqrt{{F_{Rx}}^2 + {F_{Ry}}^2 + {F_{Rz}}^2}$$

$$\alpha = \cos^{-1}\left(\frac{F_{Rx}}{||\overrightarrow{F_R}||}\right)$$

$$\beta = \cos^{-1}\left(\frac{F_{Ry}}{||\overrightarrow{F_R}||}\right)$$

$$\gamma = \cos^{-1}\left(\frac{F_{Rz}}{||\overrightarrow{F_R}||}\right)$$