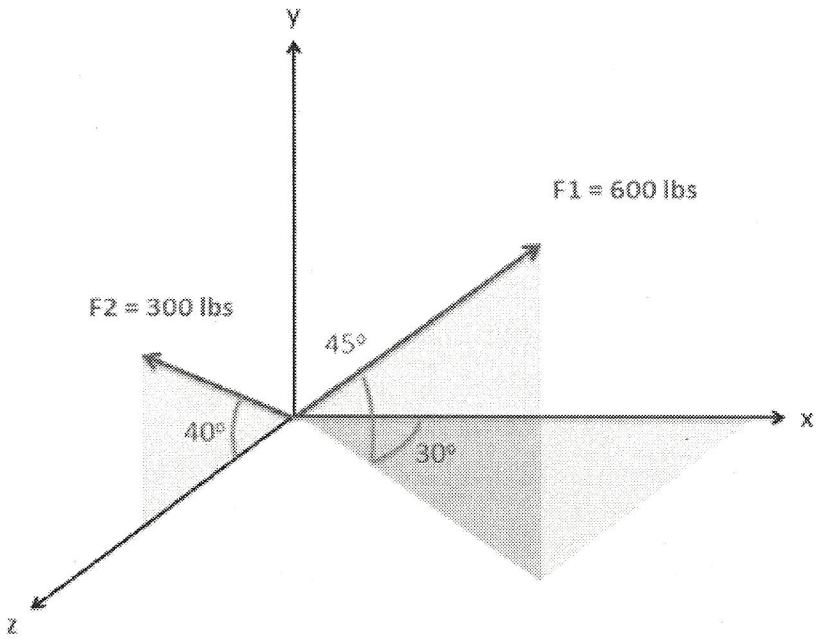
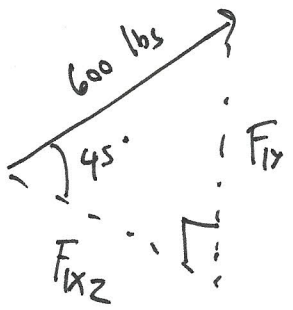
Question 3:

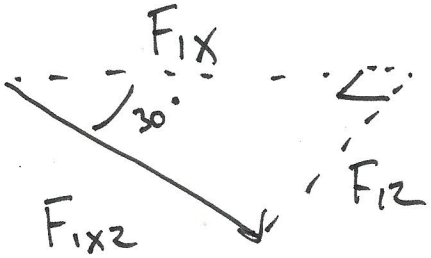
Determine the sum of the force vectors in the diagram below. Leave the sum in component form.





$$F_{1Y} = 600 \sin(45) = 424.3 \text{ lbs}$$

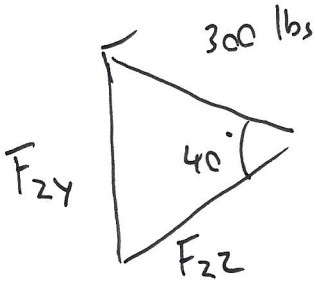
$$F_{1XZ} = 600 \cos(45) = 424.3 \text{ lbs}$$



$$F_{1X} = 424.3 \cos(30) = 367.4 \text{ lbs}$$

$$F_{1Z} = 424.3 \sin(30) = 212.1 \text{ lbs}$$

$$F_{2X} = 0$$



$$F_{2Y} = 300 \sin(40) = 192.8 \text{ lbs}$$

$$F_{2Z} = 300 \cos(40) = 229.8 \text{ lbs}$$

$$F_{TX} = F_{1X} + F_{2X}$$

$$F_{TX} = 367.4 + 0 = 367.4 \text{ lbs}$$

$$F_{TY} = F_{1Y} + F_{2Y}$$

$$F_{TY} = 424.3 + 192.8 = 617.1 \text{ lbs}$$

$$F_{TZ} = F_{1Z} + F_{2Z} =$$

$$F_{TZ} = 212.1 + 229.8 = 441.9 \text{ lbs}$$

$$F_T = [367.4, 617.1, 441.9] \text{ lbs}$$