

Part 4

fig. 1

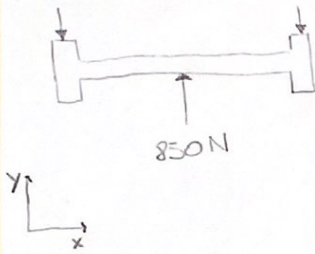
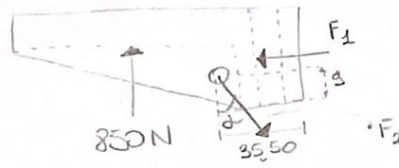


fig. 2



$$\alpha = 4.16^\circ$$

(from SW)

- Assume that the 850 N force is acting at the center of the flat surface of part 4, as shown in fig. 1 and fig. 2.

$$\sum F_x = 0 \rightarrow -F_1 + F_2 \sin \alpha = 0 \rightarrow -F_1 + F_2 \sin \alpha = 0$$

$$\sum F_y = 0 \rightarrow 850 - F_2 \cos \alpha = 0 \rightarrow 850 - F_2 \cos \alpha = 0 \rightarrow F_2 = \frac{850}{\cos \alpha} = 852.245 \text{ N}$$

Therefore,

$$-F_1 + \frac{850 \cdot \sin \alpha}{\cos \alpha} = 0 \rightarrow F_1 = 850 \cdot \tan \alpha = 850 \cdot \tan(4.16^\circ) = 61.824 \text{ N} = F_1$$

NB: F_1 and F_2 need to be divided by two since the can press is symmetric

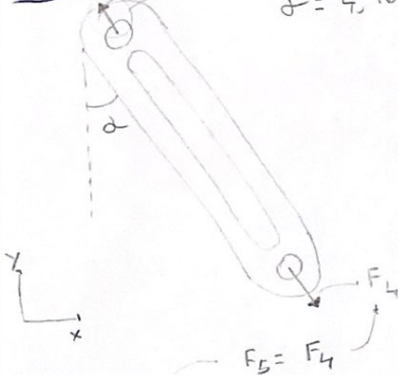
Part 6

$$F_3 = F_2/2$$

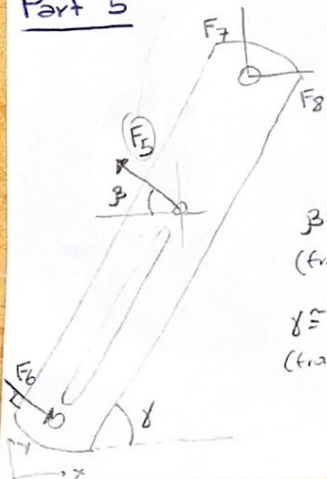
$$\alpha = 4.16^\circ$$

$$\sum F = 0$$

$$F_3 = F_4 = \frac{F_2}{2} = 426.123 \text{ N} = F_3 = F_4$$



Part 5



$$\beta = 85.84^\circ$$

(from SW)

$$\gamma = 77.6^\circ$$

(from SW)

- Assumption: F_6 is perpendicular to the length of Part 5. F_6 is the translated force that comes from pushing part 6. It is assumed that the pushing movement used to press the can is always perpendicular to the length of Part 5

$$\sum F_x =$$