

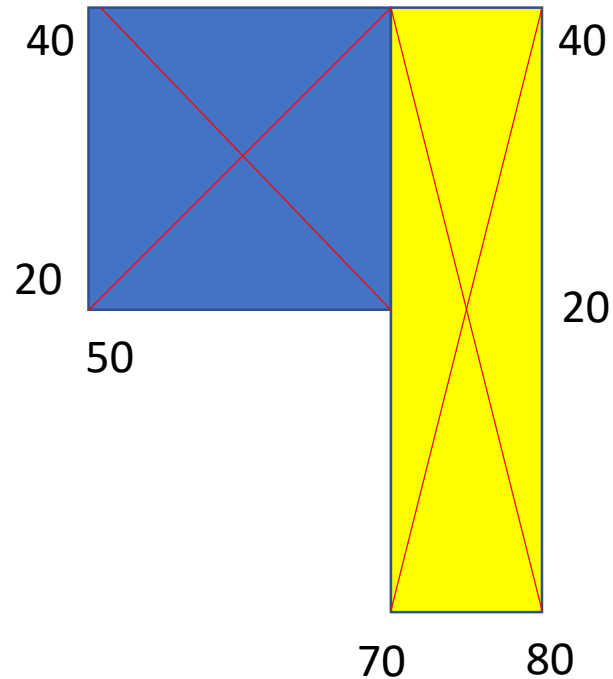
In order to compute the center of gravity of composed figures we can use the Varignon's theorem. We need:

- Measure of the area of each component (elementary area).
- Total area  $A_{tot}$ , which is obtained as sum of the elementary areas.
- Center of gravity of each elementary area.

$$x_{CoG} = \frac{\sum_i A_i x_{CoGi}}{A_{tot}}$$

$$y_{CoG} = \frac{\sum_i A_i y_{CoGi}}{A_{tot}}$$

Therefore, once we shaped shop D, we can identify two possible alternatives:



Case A

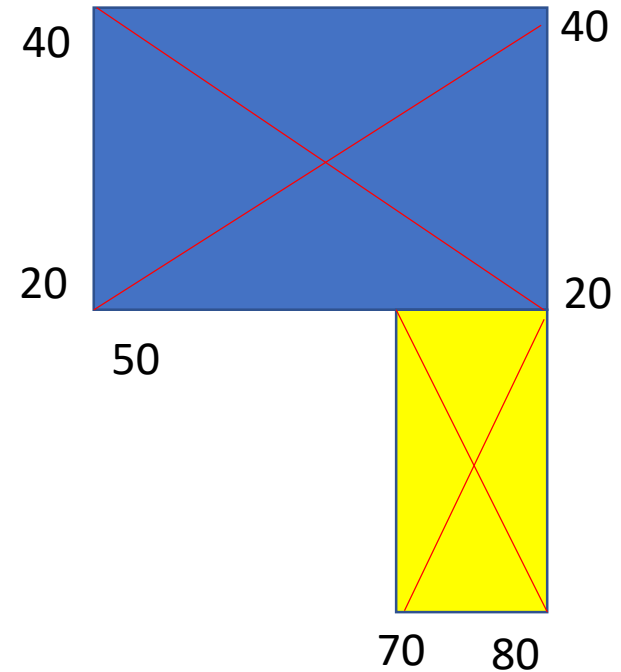
Blu area = 400, CoG=(60,30)

Yellow area = 400, CoG=(75,20)

Total Area = 400+400=800

$X_{cog} = (400 \cdot 60 + 400 \cdot 75) / 800 = 67,5$

$Y_{cog} = (400 \cdot 30 + 400 \cdot 20) / 800 = 25$



Case B

Blu area = 600, CoG=(65,30)

Yellow area = 200, CoG=(75,10)

Total Area = 600+200=800

$X_{cog} = (600 \cdot 65 + 200 \cdot 75) / 800 = 67,5$

$Y_{cog} = (600 \cdot 30 + 200 \cdot 10) / 800 = 25$