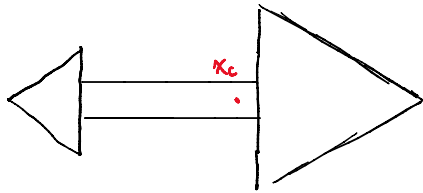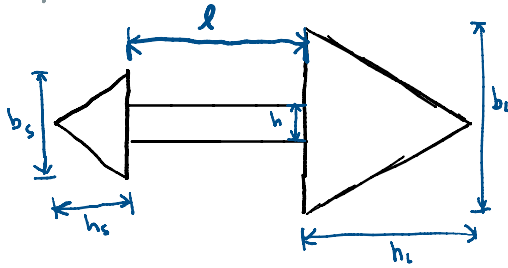20-R-KIN-DK-36

July 22, 2020   9:39 AM

20-R-KIN-DK-36 Beginner Centroids

Inspiration: None

Determine the centroid of the object if the centroid of each individual object is aligned.
The rectangular plate has a length *l = 5 cm* and height *h = 1 cm*.
The smaller triangular plate has a base *b_s = 3 cm* and height *h_s = 2 cm*.
The larger triangular plate has a base *b_l = 5 cm* and height *h_l = 4.5 cm*.

$$A_T = A_1 + A_2 + A_3$$
$$= \tfrac{1}{2}(3cm)(2cm) + (5cm)(1cm) + \tfrac{1}{2}(4.5cm)(5cm)$$
$$= 19.25 \; cm^2$$

$$X_c = \frac{\sum \bar{x}_i A_i}{A_T} = \frac{(2-\tfrac{1}{3}(2))(3) + (2+\tfrac{1}{2}(5))(5) + (2+5+\tfrac{1}{3}(4.5))(11.25)}{19.25}$$

$$= 6.344155444$$