

Written Quiz # 11

Name: Ray

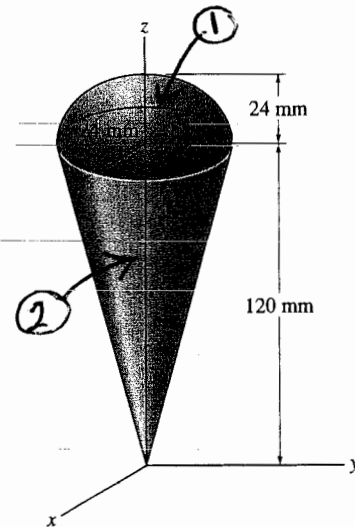
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Note: Rewrite the solution of your homework clearly, neatly, and completely!!!!!!

Locate the centroid \bar{z} of the top made from a hemisphere and a cone.

Sol. n:

Segment	V_i (mm ³)	\bar{z}_i (mm)	$\bar{z}_i V_i$ (mm ⁴)
① (hemisphere)	$\frac{2}{3}\pi(24)^3 = 28,952.918$	$120 + \frac{3}{8}(24) = 129$	3,73,49,26.409
② (cone)	$\frac{1}{3}\pi(24)^2(120) = 72,382.295$	$\frac{3}{4}(120) = 90$	6,514,406.526
	101,335.213		10,249,332.94



$$\bar{z} = \frac{\sum \bar{z}_i V_i}{\sum V_i} = \frac{10,249,332.94}{101,335.213}$$

$$\Rightarrow \boxed{\bar{z} = 101.14 \text{ mm}}$$