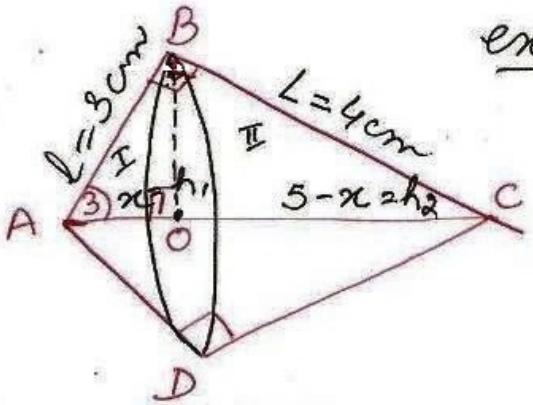
(2) ex 13.5



In rt. $\triangle ABC$

$AC^2 = AB^2 + BC^2$ (Pythagoras theorem)

$= 3^2 + 4^2$

$= 9 + 16$

$AC = \sqrt{25}$

$= 5\text{cm}$

$\triangle AOB \sim \triangle ABC$ by AA cor.

$[\angle 1 = \angle 2 = 90^\circ, \angle 3 = \angle 3]$

$\frac{AO}{AB} = \frac{AB}{AC} = \frac{OB}{BC}$

$\frac{x}{3} = \frac{3}{5} = \frac{r}{4}$

$\frac{x}{3} = \frac{3}{5}$ | $\frac{3}{5} = \frac{r}{4}$

$\Rightarrow x = \frac{9}{5}\text{cm}$ | $\Rightarrow r = \frac{12}{5}\text{cm}$

Volume of double cone

$= \frac{1}{3}\pi r^2 h_1 + \frac{1}{3}\pi r^2 h_2$

$= \frac{1}{3}\pi r^2 (h_1 + h_2)$

$= \frac{1}{3} \times 3.14 \times \frac{12}{5} \times \frac{12}{5} \times 5$ (4)

$= 3.14 \times 9.6$

$= 30.14\text{cm}^3$

total surface area

= CSA of I Cone + CSA of II cone

$= \pi r l + \pi r L$

$= \pi r (l + L)$

$= \frac{22}{7} \times \frac{12}{5} \times (3+4)$

$= \frac{22 \times 12}{7 \times 5} \times 7$

$= 52.8\text{cm}^2$