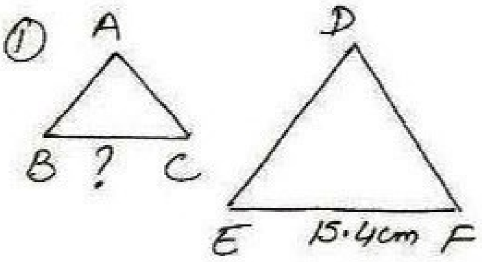
Ex 6.4

①



$\Delta ABC \sim \Delta DEF$

$\therefore \dfrac{ar(\Delta ABC)}{ar(\Delta DEF)} = \dfrac{BC^2}{EF^2}$

$\dfrac{64}{121} = \left(\dfrac{BC}{15.4}\right)^2$

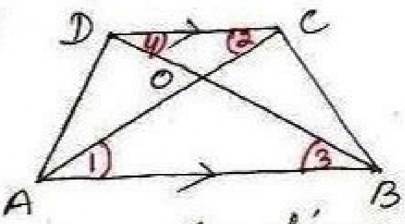
$\Rightarrow \left(\dfrac{8}{11}\right)^2 = \left(\dfrac{BC}{15.4}\right)^2$

$\Rightarrow \dfrac{BC}{15.4} = \dfrac{8}{11}$

$\Rightarrow BC = \dfrac{8}{\cancel{11}} \times \overset{1.4}{\cancel{15.4}}$

$= 11.2 cm$

②



given - In fig $AB = 2CD$

to find $\dfrac{ar(\Delta AOB)}{ar(\Delta COD)}$

Solution $\Delta AOB \sim \Delta COD$ by AA prop

$\left[\begin{array}{l}\angle 1 = \angle 2 \\ \angle 3 = \angle 4\end{array}\right.$ alt int $\angle s$ AB ∥ DC$\Big]$

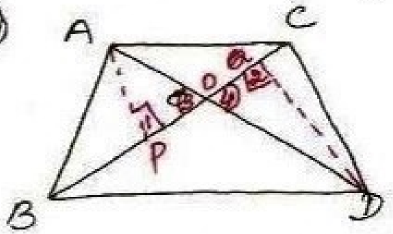
$\dfrac{ar(\Delta AOB)}{ar(\Delta COD)} = \dfrac{AB^2}{CD^2}$

$= \dfrac{(2CD)^2}{CD^2}$

$= \dfrac{4\cancel{CD^2}}{\cancel{CD^2}}$

$= \dfrac{4}{1}$

③



to show $\dfrac{ar(\Delta ABC)}{ar(\Delta DBC)} = \dfrac{AO}{DO}$

Const. $AP \perp BC$, $DQ \perp BC$

Proof $\Delta APO \sim \Delta DQO$ by AA cor.

$\Big[\angle 1 = \angle 2 = 90°$
$\angle 3 = \angle 4$ ver opp $\angle s\Big]$

$\Rightarrow \dfrac{AP}{DQ} = \dfrac{AO}{DO}$ ... ①

$\dfrac{ar(\Delta ABC)}{ar(DQO)} = \dfrac{\cancel{\frac{1}{2}} \times \cancel{BC} \times AP}{\cancel{\frac{1}{2}} \times \cancel{BC} \times DQ}$

$= \dfrac{AP}{DQ}$

$= \dfrac{AO}{DO}$ (using i)