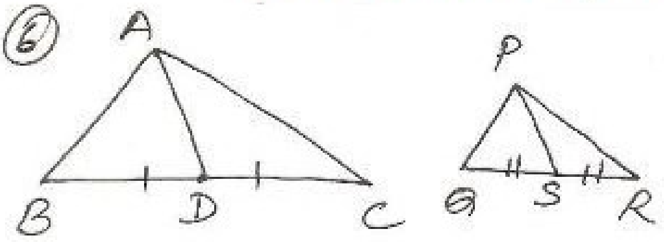
ex 6.4

(6)



To Prove $\frac{ar(\Delta ABC)}{ar(\Delta PQR)} = \frac{AD^2}{PS^2}$

Proof $\Delta ABC \sim \Delta PQR$

$\Rightarrow \angle B = \angle Q$ ... (i)

$\frac{AB}{PQ} = \frac{BC}{QR}$

$\frac{AB}{PQ} = \frac{\cancel{2} BD}{\cancel{2} QS}$ ... (ii) [D is midpt of BC, S is midpt of QR]

using (i), (ii)

$\Delta ABC \sim \Delta PQR$ by SAS prop.

$\frac{AB}{PQ} = \frac{AD}{PS}$ ... (iii)

$\frac{ar(\Delta ABC)}{ar(\Delta PQR)} = \frac{AB^2}{PQ^2}$

$= \left(\frac{AB}{PQ}\right)^2$

$= \left(\frac{AD}{PS}\right)^2$ (u/s iii)

$= \frac{AD^2}{PS^2}$

(9) $\frac{\Delta I}{\Delta II} = \frac{S_1^2}{S_2^2}$

$= \left(\frac{S_1}{S_2}\right)^2$

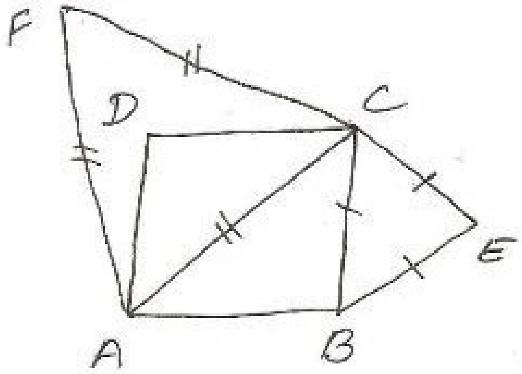
$= \left(\frac{4}{9}\right)^2$

$= \frac{16}{81}$

$\therefore$ reqd ratio $= 16:81$

(D)

(7)



To Prove $\frac{ar(\Delta EBC)}{ar(\Delta FAC)} = \frac{1}{2}$

Proof let $AB = a$ units

$AC = \sqrt{2}$ side

$= \sqrt{2}a$ units

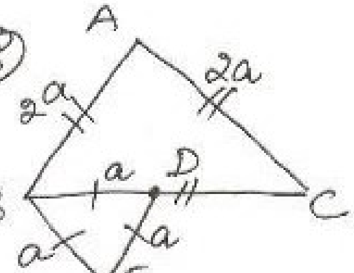
$\frac{ar(\Delta EBC)}{ar(\Delta FAC)} = \frac{\cancel{\frac{\sqrt{3}}{4}} S_1^2}{\cancel{\frac{\sqrt{3}}{4}} S_2^2}$

$= \frac{a^2}{(\sqrt{2}a)^2}$

$= \frac{a^2}{2a^2}$

$= \frac{1}{2}$

(8)



let $BD = a$, $BC = 2a$ [$\because$ D is Midpt of BC]

$\frac{ar(\Delta ABC)}{ar(\Delta DEB)} = \frac{(2a)^2}{a^2}$

$= \frac{4a^2}{a^2}$

$= \frac{4}{1}$ (C)