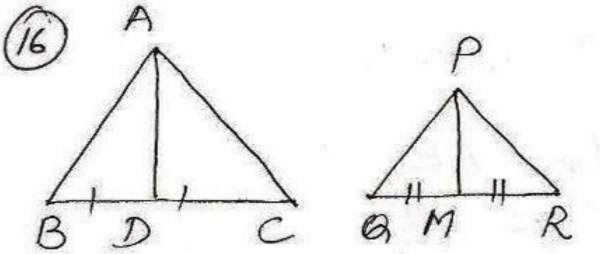
(16)



to prove $\frac{AB}{PQ} = \frac{AD}{PM}$

proof $\triangle ABC \sim \triangle PQR$

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

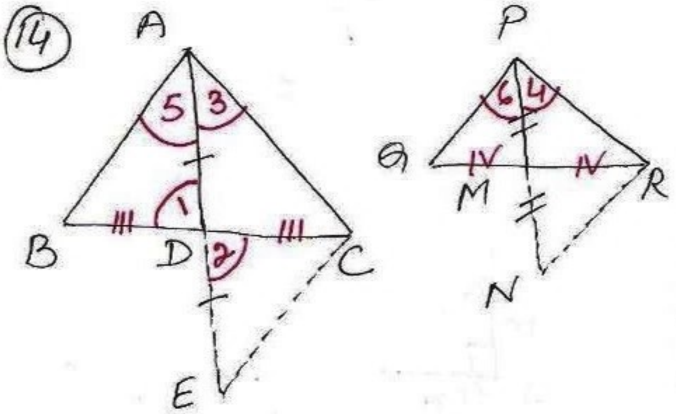
$\Rightarrow \frac{AB}{PQ} = \frac{\cancel{2}BD}{\cancel{2}QM}$ [D is midpt of BC, M is midpt of QR]

and $\angle B = \angle Q$

$\therefore \triangle ABD \sim \triangle PQM$. by SAS sim.

$\Rightarrow \frac{AB}{PQ} = \frac{AD}{PM}$

(14)



to prove $\triangle ABC \sim \triangle PQR$

Const. - Produce AD to E s.t. DE = AD, join EC
produce PM to N, s.t MN = PN join NR

proof $AD = ED$ (by const
$\angle 1 = \angle 2$ (vertically opposite $\angle$s

$BD = CD$ (∵ AD is median to side BC of $\triangle ABC$)

$\therefore \triangle ADB \cong \triangle EDC$ by SAA congruence

$AB = EC$ (cpct)

Similarly $PQ = NR$

$\frac{AB}{PQ} = \frac{AC}{PR} = \frac{AD}{PM}$

$\frac{EC}{NR} = \frac{AC}{PR} = \frac{2AD}{2PM}$ [∵ $AB = EC$, $PQ = NR$

$\frac{EC}{NR} = \frac{AC}{PR} = \frac{AE}{PN}$ [∵ $AD = DE$, $PM = MN$

$\therefore \triangle AEC \sim \triangle PNR$ by SSS Sim

$\Rightarrow \angle 3 = \angle 4$ ... (i)

Similarly $\angle 5 = \angle 6$ ... (ii)

(i) + (ii) $\angle 3 + \angle 5 = \angle 4 + \angle 6$

$\Rightarrow \angle BAC = \angle QPR$

and $\frac{AB}{PQ} = \frac{AC}{PR}$

$\therefore \triangle ABC \sim \triangle PQR$ by SAS congruency