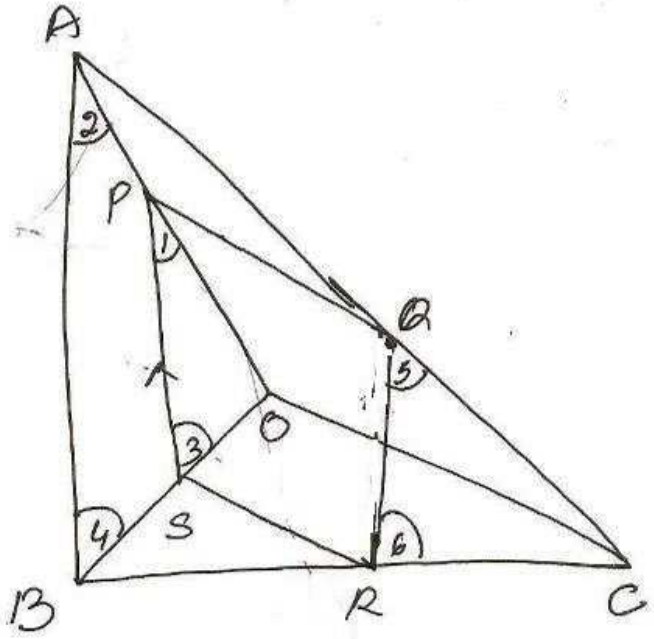
(4)



To prove OC ∥ SR

Proof PQRS is a ||gm

$\therefore$ PS ∥ QR

But PS = QR (Opp. Sides of ||gm)

$$\frac{CR}{CB} = \frac{CQ}{CA} = \frac{PS}{BA} \quad \text{--- (11)}$$

From (1) (11)

$$\frac{OP}{OA} = \frac{OS}{OB} = \frac{PS}{AB} = \frac{CR}{CB} = \frac{CQ}{CA} = \frac{PS}{BA}$$

$$\Rightarrow \frac{OP}{OA} = \frac{CQ}{CA}$$

$\Rightarrow$ OC ∥ SR

[converse of basic prop. th.]

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PS ∥ AB

$\therefore \angle 1 = \angle 2$ (corresponding angles)

$\angle 3 = \angle 4$

$\triangle OPS \sim \triangle OAB$ by AA Cor.

$$\Rightarrow \frac{OP}{OA} = \frac{OS}{OB} = \frac{PS}{AB} \quad \text{--- (1)}$$

PS ∥ QR, PS ∥ AB

$\Rightarrow$ QR ∥ AB

$\angle 5 = \angle BAC$ (corresponding angles)

$\angle 6 = \angle ABC$

$\triangle CRQ \sim \triangle CBA$

$$\frac{CR}{CB} = \frac{CQ}{CA} = \frac{RQ}{BA}$$

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