ODM EDUCATIONAL GROUP
Changing your Tomorrow

PERIOD 11

MATHEMATICS

CHAPTER NUMBER :~ 7
CHAPTER NAME :~ TRIANGLES

Website: www.odmegroup.org
Email: info@odmps.org
Toll Free: **1800 120 2316**
Sishu Vihar, Infocity Road, Patia, Bhubaneswar- 751024

PREVIOUS KNOWLEDGE TEST

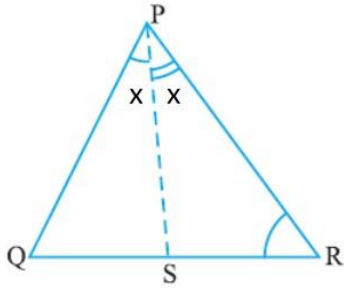
1. In ΔABC, if AD is a median, then show that $AB + AC > 2AD$.

LEARNING OUTCOME:-

1. Students will be able to solve more application sums based on Theorems 7.7 and 7.8 .

Ex7.4, 5

In the given figure, PR > PQ and PS bisects ∠QPR. Prove that ∠PSR >∠PSQ.



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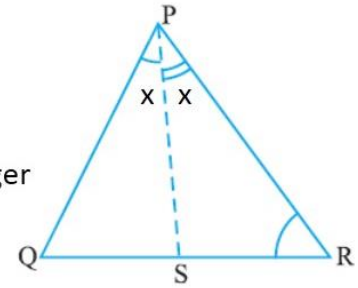


Given PR > PQ,

∴ ∠PQR > ∠PRQ (Angle opposite to the longer side is greater)

PS is the bisector of ∠QPR.

∴ ∠QPS = ∠RPS

Let ∠QPS = ∠RPS = x

In Δ PQS,

∠PSR is the exterior angle

(Exterior angle is sum of interior opposite angles)

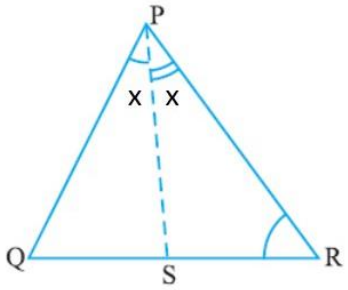
∠PSR = ∠PQR + x ...(1)

In Δ PSR,

∠PSQ is the exterior angle

(Exterior angle is sum of interior opposite angles)

∴ ∠PSQ = ∠PRQ + x ...(2)



Now,

$\angle PQR > \angle PRQ$

Adding x both sides

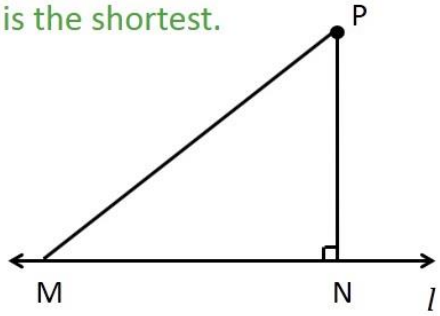
$\angle PQR + x > \angle PRQ + x$ (From (1) & (2))

$\angle PSR > \angle PSQ$

Hence proved

Ex7.4, 6

Show that of all line segments drawn from a given point not on it, the perpendicular line segment is the shortest.



Ex7.4, 6

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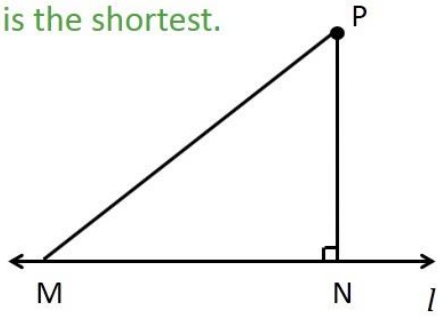


Let the given point be P

and line be l

We draw two line segments PN & PM

such that

$PM \perp MN$

We have to prove: $PM > PN$

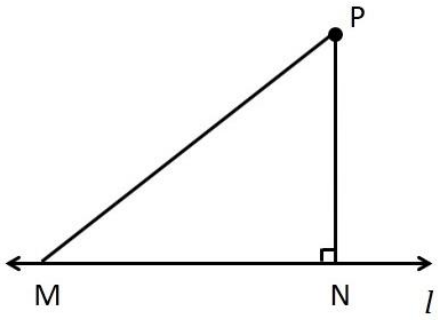
In ΔPNM,

$\angle P + \angle N + \angle M = 180°$ *(Angle sum property of triangle)*

$\angle P + 90° + \angle M = 180°$ *(As $PN \perp MN$, $\angle N = 90°$)*

$\angle P + \angle M = 180° - 90°$

$\angle P + \angle M = 90°$



Since angle can't be 0 or negative

Hence,

$\angle M < 90°$

$\angle M < \angle N$

$PN < PM$ *(Side opposite to the greater angle is longer)*

$\therefore$ Perpendicular line segment is the shortest

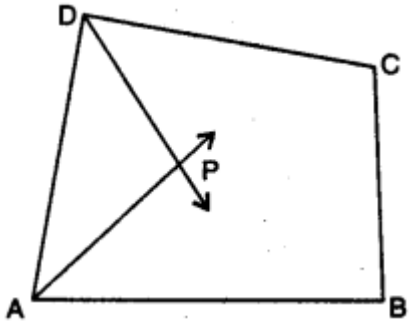
Hence proved

HOMEWORK ASSIGNMENT

Exercise 7.4
Question number 5,6

AHA

In the given figure, AP and DP are bisectors of two adjacent angles A and D of quadrilateral ABCD. Prove that $2\angle APD = \angle B + 2C$.



THANKING YOU

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