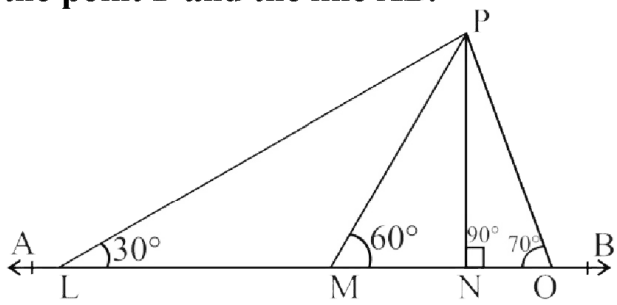
Exercise 13.2

Q.1 **In the figure P is any point and AB is a line which of the following is the shortest distance between the point P and the line AB.**

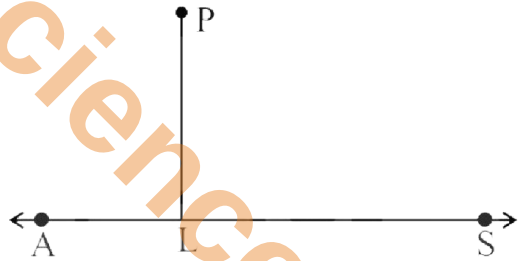


(a) $m\overline{PL}$ (b) $m\overline{PM}$ (c) $m\overline{PN}$ (d) $m\overline{PO}$

As we know that $\overline{PN} \perp \overleftrightarrow{AB}$

So $\overline{PN}$ is the shortest distance

Q.2 **In the figure, P is any point lying away from the line $\overline{AB}$. Then $m\overline{PL}$ will be the shortest distance if**



(a) $m\angle P\ \angle A = 80^o$ (b) $m\angle P\angle B = 100^o$ (c) $m\angle P\angle A = 90^o$

Solution:

$m\angle PLA = 90^o$

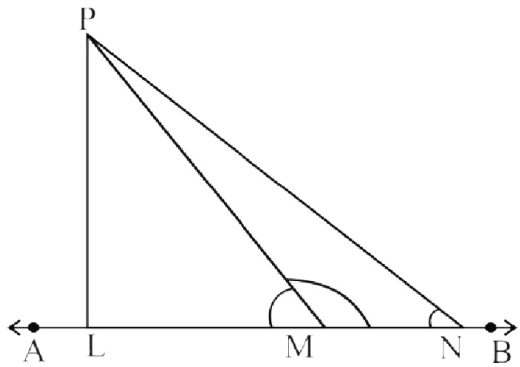
$\overline{PL} \perp \overleftrightarrow{AS}$

PL is the shortest distance

So $\angle PLA$ or PLS equal to 90^o

Q.3 **In the figure, $\overline{PL}$ is perpendicular to the line AB and $\overline{LN} > m\overline{LM}$. Prove that $m\overline{PN} > m\overline{PM}$.**

Given



$\overline{PL} \perp \overleftrightarrow{AB}$

$m\overline{LN} > m\overline{LM}$

To proved:

$m\overline{PN} > m\overline{PM}$

Proof

Statements	Reasons
ΔPLM	
$\angle PLM = 90^o$	
$\therefore \angle PMN > \Delta PLM$	Exterior angle
$\angle PMN > 90^o$	
$In\Delta PLN$	
$\angle PLN = 90^o$	
$m\angle PNL < 90^o$	Acute angle
ΔPMN	
$m\angle PMN > m\angle PNL$	
$\therefore \overline{PN} > \overline{PM}$	