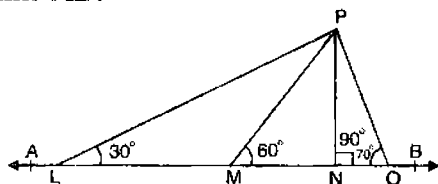


## Exercise 13.2

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.

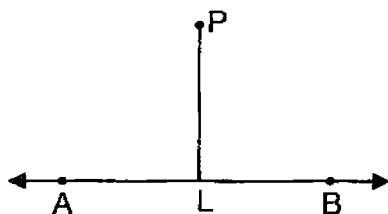


- (a)  $m\overline{PL}$                       (b)  $m\overline{PM}$   
 (c)  $m\overline{PN}$                       (d)  $m\overline{PO}$

Ans. (c)

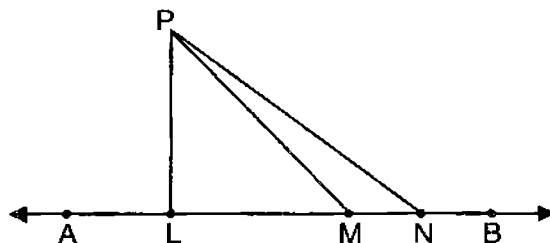
2. In the figure, P is any point lying away from the line AB. Then  $m\overline{PL}$  will be the shortest distance if:

- (a)  $m\angle PLA = 80^\circ$   
 (b)  $m\angle PLB = 100^\circ$   
 (c)  $m\angle PLA = 90^\circ$



Ans. (c)

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



Ans. Here it is given  $m\overline{PL}$  is perpendicular to line  $\overline{AB}$  and  $m\overline{LN} > m\overline{LM}$

**Proof:**

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

As  $\overline{PL}$  is the shortest distance from P to line  $\overline{AB}$ . So

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

As we go away from point L, the distance from points to L increases Hence

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

**4. Which of the following are true and which are false?**

(i) The angle opposite to the longer side is greater. **TRUE**

(ii) In a right-angled triangle greater angle is of  $60^\circ$ . **FALSE**

(iii) In an isosceles right-angled triangle, angles other than right angle are each of  $45^\circ$ . **TRUE**

(iv) A triangle having two congruent sides is called equilateral triangle. **FALSE**

(v) A perpendicular from a point to a line is shortest distance. **TRUE**

(vi) Perpendicular to line form an angle of  $90^\circ$ . **TRUE**

(vii) A point out-side the line is collinear. **FALSE**

(viii) Sum of two sides of triangle is greater than the third. **TRUE**

(ix) The distance between a line and a point on it is zero. **TRUE**

(x) Triangle can be formed of lengths 2 cm, 3 cm and 5 cm. **FALSE**

**5. What will be angle for shortest distance from an outside point to the line?**

**Ans.**  $90^\circ$

**6.** If 13 cm, 12 cm, and 5 cm are the lengths of a triangle, then verify that difference of measures of any two sides of a triangle is less than the measure of the third side.

**Ans:** (i)  $13 - 12 = 1 < 5$

(ii)  $12 - 5 = 7 < 13$

(iii)  $13 - 5 = 8 < 12$

So verified

**7.** If 10 cm, 6 cm and 8 cm are the lengths of a triangle, then verify that sum of measures of two sides of a triangle is greater than the third side.

**Ans.** (i)  $10 + 6 = 16 > 8$

(ii)  $6 + 8 = 14 > 10$

(iii)  $10 + 8 = 18 > 6$

**8.** 3 cm, 4 cm and 7 are not the lengths of the triangle. Give the reason.

**Ans:**  $3 + 4 < 7$

**9.** If 3 cm and 4 cm are lengths of two sides of a right angle triangle then what should be the third length of the triangle.

**Ans.** Third length =  $\sqrt{3^2 + 4^2}$   
 $= \sqrt{25} = 5\text{cm}$