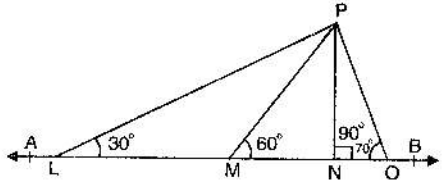
Exercise 13.2

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) $m\overline{PO}$

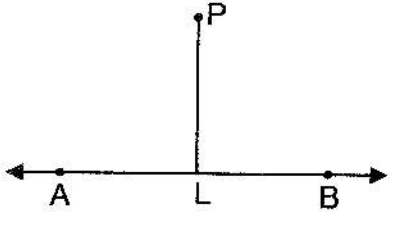
Ans. (c)

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) $m\angle PLA = 80^\circ$

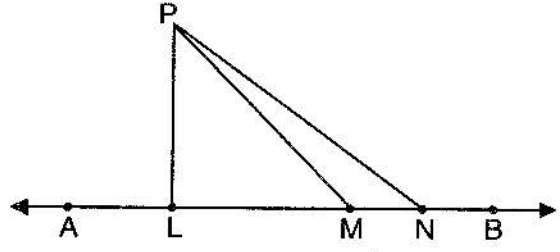
(b) $m\angle PLB = 100^\circ$

(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 $\overleftrightarrow{AB}$ 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 $\overleftrightarrow{AB}$. 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°. **FALSE**

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

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

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

(vi) Perpendicular to line form an angle of 90°. **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°

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) $13 - 12 = 1 < 15$

(ii) $12 - 4 = 7 < 13$

(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: $3 + 4 \not> 7$

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 $= \sqrt{3^2 + 4^2}$

$= \sqrt{25} = 5\text{cm}$

OBJECTIVE

1. Which of the following sets of lengths can be the lengths of the sides of a triangle:

(a) 2cm, 3cm, 5cm

(b) 3cm, 4cm, 5cm

(c) 2cm, 4cm, 7cm

(d) None

2. Two sides of a triangle measure 10cm and 15cm. Which of the following measure is possible for the third side!

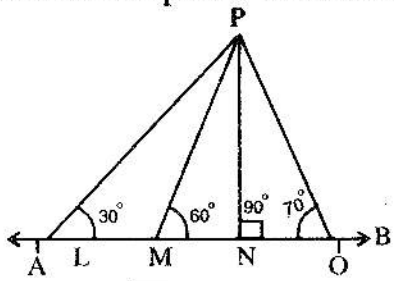
(a) 5cm

(b) 20cm

(c) 25cm

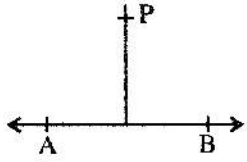
(d) 30cm

3. In the figure, P is any point and AB is a line. Which of the following is the short distance between the point P and line AB.



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

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



(a) $m < PLA = 80^\circ$
(b) $m < PLB = 100^\circ$
(c) $m < PLA = 90^\circ$
(d) None

5. The angle opposite to the longer side is:
(a) Greater
(b) Shorter
(c) Equal
(d) None

6. In right angle triangle greater angle of:
(a) 60°
(b) 30°
(c) 75°
(d) 90°

7. In an isosceles right-angled triangle angles other than right angle are each of:
(a) 40°
(b) 45°
(c) 50°
(d) 55°

8. A triangle having two congruent sides is called ___ triangle.
(a) Equilateral
(b) Isosceles
(c) Right
(d) None

9. Perpendicular to line form an angle of __
(a) 30°
(b) 60°
(c) 90°
(d) 120°

10. Sum of two sides of triangle is ___ than the third.
(a) Greater
(b) Smaller
(c) Equal
(d) None

11. The distance between a line and a point on it is ___
(a) Zero
(b) One
(c) Equal
(d) None

ANSWER KEY

1.	b	**2.**	b	**3.**	c	**4.**	c	**5.**	a
6.	d	**7.**	b	**8.**	a	**9.**	c	**10.**	a
11.	a								