

## Practical Geometry

### MATHEMATICAL REASONING

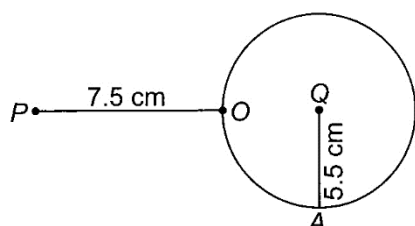
1. Through a line in a plane, number of lines that can be drawn is \_\_\_\_.

(a) 1 (b) 2  
(c) 0 (d) Infinite

2. An angle of  $75^\circ$  is drawn using a pair of compass and ruler by bisecting \_\_\_\_.

(a)  $60^\circ$  (b)  $60^\circ$  and  $90^\circ$   
(c)  $0^\circ$  and  $90^\circ$  (d)  $120^\circ$  and  $180^\circ$

3. If O is a point on the circle and P is a point in the exterior of the circle. Length of  $\overline{OP} = 7.5$  cm and radius of the circle is 5.5 cm. What will be the length of  $\overline{QP}$ , if Q is the centre?



(a) 5.5 cm (b) 13 cm  
(c) 7.5 cm (d) 13.5 cm

4. A perpendicular is drawn to a line segment  $\overline{MN}$  at N using protractor and point P is marked on perpendicular, then \_\_\_\_.

(a)  $\overline{MP} \perp \overline{NP}$  (b)  $\overline{MN} \parallel \overline{NP}$   
(c)  $\overline{MN} \parallel \overline{MP}$  (d)  $\overline{MN} \perp \overline{NP}$

5. Sumit constructed an angle of  $90^\circ$  and trisected it. Measure of two angles taken together will be

(a)  $20^\circ$  (b)  $40^\circ$   
(c)  $60^\circ$  (d) None of these

6. A line segment has \_\_\_\_ end points.

(a) No (b) 2  
(c) 1 (d) 3

7. Number of perpendicular bisectors for a line segment is

(a) Three (b) Five  
(c) One (d) Infinite

8. To draw an angle of  $150^\circ$  using a pair of compass and ruler \_\_\_\_.

(a) Bisect angle between  $120^\circ$  and  $180^\circ$   
(b) Bisect angle between  $60^\circ$  and  $120^\circ$   
(c) Bisect angle between  $0^\circ$  and  $160^\circ$   
(d) None of these

9. A line segment  $\overline{PQ} = 8.2$  cm is bisected at O, then length of  $\overline{PO}$  is \_\_\_\_.

(a) 4.2 cm (b) 4 cm  
(c) 4.1 cm (d) 16.4 cm

10. Number of set squares in geometry box is

(a) 0 (b) 1  
(c) 2 (d)

### ACHIEVERS SECTION (HOTS)

11. Which of the following steps is INCORRECT while constructing an angle of  $60^\circ$ ?

**Step – 1:** Draw a line EF and mark a point O on it.

**Step – 2:** Place the pointer of the compass at O and draw an arc of convenient radius which cuts the line EF at point P.

**Step – 3:** With the pointer at A (as centre) now draw an arc that passes through O.

**Step – 4:** Let the two arcs intersect at Q. Join OQ. We get  $\angle QOP$  whose measure is  $60^\circ$ .

(a) Only Step - 1  
(b) Both Step - 2 and Step - 3  
(c) Only Step - 3  
(d) Both Step - 3 and Step - 4

12. Fill in the blanks.
- (i) Perpendicular bisector of the diameter of a circle passes through the P of the circle.
- (ii) If B is image of A in line  $l$  and D is image of C in line  $l$ , then  $AC = \underline{Q}$ .
- (iii) Angle bisector is a ray which divides the angle in R equal parts.

	P		Q		R
(a)	Centre		BD		2
(b)	Centre		AD		1
(c)	Centre		AB		1
(d)	Centre		BC		2

13. Arrange the given steps in CORRECT order of constructing a perpendicular using ruler and compasses.

Steps of construction:

1. With A and B as centres and a radius greater than AP construct two arcs, which cut each other at Q.

2. Join PQ. Then  $\overline{PQ}$  is perpendicular to  $l$ .

We write  $\overline{PQ} \perp l$ .

3. With P as centre and a convenient radius, construct an arc intersecting the line  $l$  at two points A and B.

4. Given a point P on a line  $l$ .

- (a) 4 – 3 – 1 – 2                      (b) 3 – 4 – 2 – 1  
(c) 4 – 1 – 3 – 2                      (d) 1 – 2 – 3 – 4

14. State 'T' for true and 'F' for false.
- (i) It is possible to divide a line segment in 5 equal parts by perpendicularly bisecting a given line segment 5 times.
- (ii) With a given centre and a given radius, only one circle can be drawn.
- (iii) If we bisect an angle of a square, we get two angles of  $45^\circ$  each.

	(i)	(ii)	(iii)
(a)	F	T	T
(b)	F	T	F
(c)	T	F	T
(d)	T	T	F

15. Read the statements carefully.

**Statement – 1:** Two lines are said to be perpendicular if they intersect each other at an angle of  $90^\circ$ .

**Statement – 2:** A unique circle can be drawn passing through the given centre.

Which of the following options holds?

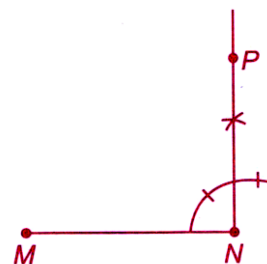
- (a) Both Statement - 1 and Statement - 2 are true.  
(b) Statement - 1 is true and Statement – 2 is false.  
(c) Statement - 1 is false and Statement – 2 is true.  
(d) Both Statement - 1 and Statement – 2 are false.

#### ANSWER KEY

1.	D	2.	B	3.	B	4.	D	5.	C
6.	B	7.	C	8.	A	9.	C	10.	C
11.	C	12.	A	13.	A	14.	A	15.	B

#### HINTS & EXPLANATIONS

1. (d) Not Available
2. (b) Not Available
3. (b) :  $\overline{OQ} + \overline{OP} = 5.5 + 7.5 = 13\text{ cm}$
4. (d):



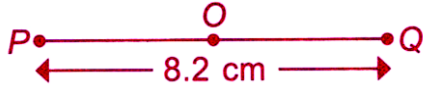
$$\therefore \overline{MN} \perp \overline{NP}$$

5. (c) Not Available
6. (b) Not Available

7. (c) Not Available

8. (a) Not Available

9. (c) : Length of  $\overline{PO} = \left(\frac{8.2}{2}\right) \text{ cm} = 4.1 \text{ cm}$



10. (c) Not Available

11. (c): Step-3 is incorrect it should be written as:  
with the pointer at P (as centre) now draw an arc that passes through O.

12. (a) Not Available

13. (a) Not Available

14. (a) Not Available

15. (b) Not Available