

## CHAPTER 10

# PRACTICAL GEOMETRY

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### Points to Remember :

1. Recall that :
  - (i) A triangle is constructed if sum of the lengths of two line-segments is greater than the third.
  - (ii) If the sum of three given angles is  $180^\circ$ , these may be the angles of a triangle.
  - (iii) Minimum number of elements required to construct a triangle are three because three vertices have to be located. We can recall these elements by using indirectly the concept of congruence of triangles *i.e.*
    - (a) SSS (Three sides are known)
    - (b) SAS (Two sides and included angle is known)
    - (c) ASA (Two angles and included side is known)
    - (d) RHS (Hypotenuse of right angled triangle and length of one side is known)

### Line Parallel to a Given Line

- (i) We can draw many lines parallel to a given line.
- (ii) Through a point given outside a line, we can draw only one line parallel to the given line.

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## QUESTIONS

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1. The lengths of the three line segments are 4 cm, 5 cm, and 6 cm. Can a triangle be constructed with these?
2. The lengths of the three line segments are 3 cm, 4 cm, 8 cm. Is it possible to construct a triangle?
3. Is it possible to construct a triangle with the triplet of three line segments 2 cm, 4 cm and 6 cm?
4. What should be the relation between the three sides of a triangle to construct a triangle?

5. What should be the sum of three angles so that a triangle can be constructed?
6. How many minimum number of elements are required to construct a triangle? Why?

**Q. 7 to Q. 10 – Fill in the Blanks**

7. The length of \_\_\_\_\_ sides may be enough to construct a triangle.
8. \_\_\_\_\_ sides and the \_\_\_\_\_ angle are enough to construct a triangle.
9. \_\_\_\_\_ angles and the \_\_\_\_\_ side are enough to construct a triangle.
10. \_\_\_\_\_ side and length of \_\_\_\_\_ is enough to construct a right angled triangle.
11. Give a triplet of lengths using which triangle can be constructed?
12. Which geometrical instrument can be used to draw an arc?
13. If three sides measure 5.2 cm, 4 cm, 6 cm then what type of triangle can be constructed?
14. If  $\angle R = 50^\circ$ ,  $\angle S = 70^\circ$  and  $RS = 5.5$  cm then what type of triangle can be constructed?
15. If length of a side and length of hypotenuse is given then what type of triangle can be constructed?
16. How many lines can be drawn parallel to a given line?
17. How many lines can be drawn parallel to a given line and through a point outside the given line?

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**ANSWERS**

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| 1. Yes   | 2. No                     |
| 3. No  |                           |
| 4. Sum of the lengths of any two sides of a triangles is greater than the third side.  |                           |
| 5. $180^\circ$   |                           |
| 6. Three, because three vertices have to be located  |                           |
| 7. Three   | 8. Two, included          |
| 9. Two, included   | 10. One, Hypotenuse       |
| 11. Any triplet which satisfies the condition that sum of the lengths of any two sides of a triangle is greater than the third side. |                           |
| 12. Compass  | 13. Scalene               |
| 14. Scalene Acute Angled Triangle  | 15. Right Angled Triangle |
| 16. Many lines   | 17. Only one line         |