

### Exercise 10.2

# PRACTICAL GEOMETRY

CL. 10

PRACTICE

GEOMETRY

Class 7

- Construct a  $\triangle ABC$  in which  $BC = 5.5$  cm,  $CA = 6.5$  cm and  $AB = 3.8$  cm.
- Construct a  $\triangle ABC$  in which  $AB = 5.3$  cm,  $BC = 4.6$  cm and  $AC = 6.4$  cm.
- Construct an equilateral triangle in which each side is 4.5 cm.
- Construct a  $\triangle ABC$  in which  $AB = BC = 6.8$  cm and  $\angle B = 70^\circ$ .
- Construct a  $\triangle ABC$  in which  $AB = 4.3$  cm,  $AC = 5.6$  cm and  $\angle A = 45^\circ$ .
- Construct a  $\triangle ABC$  in which  $BC = 6$  cm,  $CA = 3$  cm and  $\angle C = 65^\circ$ .
- Construct a  $\triangle ABC$  in which  $\angle A = 65^\circ$ ,  $\angle B = 40^\circ$  and  $AB = 5$  cm.
- Construct a  $\triangle ABC$  in which  $\angle B = 75^\circ$ ,  $\angle C = 30^\circ$  and  $CA = 4.3$  cm.  
[Hint: Find  $\angle A$ , i.e.,  $\angle A = 180^\circ - (\angle B + \angle C)$ .]
- Construct a  $\triangle ABC$  in which  $BC = 7.3$  cm,  $\angle B = 135^\circ$  and  $\angle A = 30^\circ$ .
- Construct a  $\triangle ABC$  in which  $AB = 5$  cm,  $AC = 4.9$  cm and  $\angle A = 90^\circ$ .
- Construct a right triangle  $ABC$  in which  $\angle B = 90^\circ$ ,  $AB = 4$  cm and  $BC = 7.5$  cm. Measure  $AC$ .
- Construct a triangle  $ABC$ , right angled at  $B$ , such that  $BC = 6$  cm,  $AC = 10$  cm. Measure  $AB$ .
- Construct an isosceles right triangle  $ABC$  in which  $\angle A = 90^\circ$  and  $AC = AB = 5$  cm.
- Construct a  $\triangle ABC$  in which  $AC = CB = 5$  cm and  $\angle B = 45^\circ$ . Is this a right angle triangle?

### QUICK RECALL

- A triangle can be constructed, when the measurements of three sides (SSS); two sides and an angle included between these sides (SAS); two angles and a side included between these angles (ASA); a right angle, hypotenuse and one of the sides (RHS) are given.
- It is possible to construct a triangle only if:
  - the sum of the lengths of any two sides is more than the length of the third side.
  - the sum of the two given angles is less than  $180^\circ$ .
- We can construct a line parallel to the given line, using a ruler and compasses or, a ruler and set squares.

### Objective Type Questions

#### I. Multiple Choice Questions.

1. In a triangle, the sum of any two sides is always:

- |                               |                          |                                  |                          |
|-------------------------------|--------------------------|----------------------------------|--------------------------|
| (i) less than the third side  | <input type="checkbox"/> | (ii) greater than the third side | <input type="checkbox"/> |
| (iii) equal to the third side | <input type="checkbox"/> | (iv) none of these               | <input type="checkbox"/> |



# PRACTICE GEOMETRY

2. In  $\triangle ABC$ , the included side between  $\angle B$  and  $\angle C$  is:

- (i) AB  (ii) BC  (iii) AC  (iv) none of these

3. The angles opposite the equal sides are:

- (i) unequal  (ii) equal  (iii) right angles  (iv) acute angles

4. Sides opposite to equal angles are:

- (i) perpendicular  (ii) unequal  (iii) equal  (iv) parallel

5. If  $AB \parallel EF$  and  $CD \parallel EF$  then:

- (i)  $AB \perp BF$   (ii)  $CD \perp EF$   (iii)  $AB \parallel CD$   (iv)  $AB \perp CD$

## II. Fill in the blanks.

6. The sum of all the angles of a triangle is \_\_\_\_\_ right angles.  
 7. In  $\triangle PQR$ , the included angle between sides  $PR$  and  $QP$  is \_\_\_\_\_.  
 8. \_\_\_\_\_ angle of a triangle is equal to the sum of the two interior opposite angles.  
 9. Exterior angle of a triangle and the adjacent interior angle form a \_\_\_\_\_ pair.

## III. Tick (✓) for 'True' and (×) for 'False'.

10. If one angle of a triangle is a right angle, then the triangle is called a right-angled triangle.   
 11. If all the sides of a triangle are equal, then the triangle is called an isosceles triangle.   
 12. The angles of a triangle can be  $30^\circ$ ,  $60^\circ$  and  $100^\circ$ .   
 13. The sides of a triangle can be 3 cm, 8 cm and 10 cm.

## Class Worksheet / Oral Assessment

1. Is it possible to construct a triangle with sides 3 cm, 4 cm and 8 cm?
2. What are the instruments to be used in performing constructions?
3. When are two angles equal? Can you make an angle equal to a given angle with the use of compass & unmarked ruler only?
4. When do you say a line is the perpendicular bisector of another line?
5. What is the sum of the angles of a triangle?
6. The exterior angle of a triangle is equal to sum of the \_\_\_\_\_.
7. What are the adjacent sides and adjacent angles of a triangle?
8. Out of angles of  $35^\circ$ ,  $40^\circ$ ,  $57^\circ$  and  $75^\circ$ , which can be made with the help of a ruler and compass?