

1. OBJECTIVE QUESTIONS

1. To construct a right triangle whose base is 12 cm and sum of its hypotenuse and other side is 18 cm. We draw line segment AB of 12 cm. Draw a ray AX making 90° with AB . The next step is:

- (a) Cut a line segment AD of 18 cm on AX
 (b) Cut a line segment BD of 18 cm
 (c) Cut a line segment AD of 18 cm on AB
 (d) Cut a line segment BD of 18 cm on AB

Ans : (a) Cut a line segment AD of 18 cm on AX

Next step is to take A as centre and radius equal to (sum of other two sides), draw an arc intersecting AX at D .

2. Which of the following angles can be constructed by using ruler and compass only?

- (a) 20° (b) 72°
 (c) 105° (d) 130°

Ans : (c) 105°

3. The construction of a $\triangle LMN$ in which $LM = 8$ cm, $\angle L = 45^\circ$ is possible when $(MN + LN)$ is

- (a) 6 cm (b) 7 cm
 (c) 9 cm (d) 5 cm

Ans : (c) 9 cm

We know that sum of two sides of a triangle is always greater than third side.

$$MN + LN > LM \text{ i.e., } 8 \text{ cm}$$

$$MN + LN \text{ will be } 9 \text{ cm}$$

4. The construction of a triangle ABC , given that $BC = 6$ cm, $\angle B = 45^\circ$ is not possible when difference of AB and AC is equal to:

- (a) 6.9 cm (b) 5.2 cm
 (c) 5.0 cm (d) 4.0 cm

Ans : (a) 6.9 cm

It is not possible to construct triangle whose difference of two side is more than the third side.

5. The construction of a triangle ABC , given that $BC = 3$ cm, $\angle C = 60^\circ$ is possible when difference of AB and AC is equal to:

- (a) 3.2 cm (b) 3.1 cm
 (c) 3 cm (d) 2.8 cm

Ans : (d) 2.8 cm

A triangle can be constructed when difference of two

of its sides is less than the third side.

6. Which of the following angles cannot be constructed by using ruler and compass only?

- (a) 30° (b) 45°
 (c) 70° (d) 90°

Ans : (c) 70°

70° ; It can not be constructed by using ruler and compass only.

7. The construction of a $\triangle DEF$ in which $DE = 7$ cm, $\angle D = 75^\circ$ is possible when $(DE - EF)$ is equal to

- (a) 7.5 cm (b) 7 cm
 (c) 8 cm (d) 6.5 cm

Ans : (d) 6.5 cm

We know that in a triangle, the difference of two sides is never greater than any side.

$$\text{i.e., } EF - DF < DE \text{ i.e., } 7 \text{ cm}$$

$$EF + DF \text{ will be } 6.5 \text{ cm.}$$

8. The construction of a $\triangle PQR$ in which $QR = 6.4$ cm and $\angle Q = 60^\circ$ is not possible when $(PQ + PR)$ is

- (a) 6 cm (b) 6.5 cm
 (c) 8 cm (d) 7 cm

Ans : (a) 6 cm

$$PQ + PR > QR \text{ i.e., } 6.4 \text{ cm}$$

$$PQ + PR \text{ will not be } 6 \text{ cm}$$

9. A unique triangle cannot be constructed if its

- (a) three angles are given
 (b) two angles and one side is given
 (c) three sides are given
 (d) two sides and the included angle is given

Ans : (a) three angles are given

Since many similar triangles can be constructed if measure of three angles are given.

10. If the lengths of two sides of an isosceles triangle are 4 cm and 10 cm, then the length of the third side is

- (a) 4 cm (b) 10 cm
 (c) 7 cm (d) 14 cm

Ans : (b) 10 cm

As triangle is isosceles, thus two of its sides must be equal. If the length of third side is taken to be 4 cm, then sum of two sides that is $(4 + 4 = 8)$ will be less than third side which is not possible. Thus, third side must be 10 cm.

11. Arrange the following steps of construction of a ΔABC , in which $BC = 3.8$ cm, $\angle B = 45^\circ$ and $AB + AC = 6.8$ cm in correct sequence.
Step I : Draw the perpendicular bisector of CD meeting BD at A .
Step II : Draw $BC = 3.8$ cm.
Step III : Join CD .
Step IV : From ray BX , cut-off line segment BD equal to $AB + AC$ i.e., 6.8 cm.
Step V : Draw $\angle CBX = 45^\circ$
Step VI : Join CA to obtain the required ΔABC .
 (a) II, IV, V, III, I, VI (b) II, V, III, I, IV, VI
 (c) II, V, IV, I, III, VI (d) II, V, IV, III, I, VI

Ans : (d) II, V, IV, III, I, VI

The correct sequence is II, V, IV, III, I, VI.

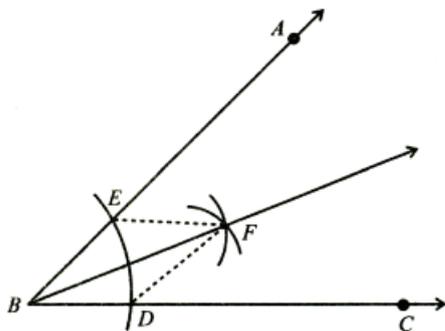
12. By following these steps of construction,
 1. Draw a line segment $PQ = 11$ cm
 2. At P construct an angles of 60° and at Q , an angle of 45° .
 3. Bisect these angles. Let the bisectors of these angles intersect at a point A .
 4. Draw perpendicular bisectors DE of AP to intersect PQ at B and FG of AQ to intersect PQ at C .
 5. Join AB and AC . Triangle ABC has been obtained. In this ΔABC ,
 (a) $AB + BC + CA = 11$ cm
 (b) $AB + BC = 11$ cm
 (c) $BC + CA = 11$ cm
 (d) $AB + BC + CA > 11$ cm

Ans : (a) $AB + BC + CA = 11$ cm

Line segment PQ is equal to the perimeter of triangle i.e.,

$$AB + BC + CA = 11 \text{ cm}$$

13. In the construction of the bisector of a given angle, as shown in the figure below.



- $\Delta BEF \cong \Delta BDF$ by which congruence criterion?
 (a) SSS (b) SAS
 (c) AAS (d) RHS

Ans : (b) SAS

In ΔBEF and ΔBDF

$BE = BD$ [By construction]

$\angle BEF = \angle BDF$ [By construction]

$BF = BF$ [Common]

Hence, $\Delta BEF \cong \Delta BDF$ [SAS]

14. Which of the following steps is incorrect while constructing an equilateral triangle one of whose altitudes measures 5 cm?
Step I : Draw a line XY .
Step II : Mark any point P on it.
Step III : From P , draw $PQ \perp XY$.
Step IV : From P , set off $PA = 5$ cm, cutting PQ at A .
Step V : Construct $\angle PAB = 60^\circ$ and $\angle PAC = 60^\circ$, meeting XY at B and C respectively.
 Then, ΔABC is the required equilateral triangle.
 (a) Step IV (b) Step V
 (c) Step III (d) None of these

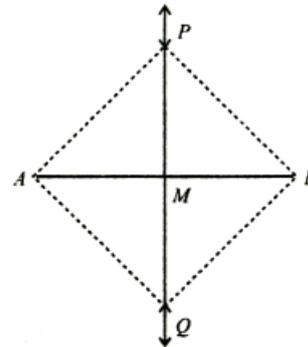
Ans : (b) Step V

Step V is incorrect it should be like as “Construct $\angle PAB = 30^\circ$ and $\angle PAC = 30^\circ$ meeting XY at B and C respectively.”

15. Study the statements carefully and select the correct option.
Statement-I : The sum of any two sides of a triangle is always greater than the third side.
Statement-II : It is possible to construct a ΔABC in which $AB = 5$ cm, $BC = 5$ cm and $AC = 10$ cm.
 (a) Statement-I is true but statement-II is false.
 (b) Statement-I is false but statement-II is true.
 (c) Both statement-I and statement-II are false.
 (d) Both statement-I and statement-II are true.

Ans : (a) Statement-I is true but statement-II is false.

16. In the construction of the perpendicular bisector of a given line segment, as shown in the figure below



- $\Delta PMA \cong \Delta PMB$ by which congruence criterion?
 (a) SSS (b) SAS
 (c) AAS (d) RHS

Ans : (b) SAS

In ΔPMA and ΔPMB

$PM = PM$ [Common]

$\angle PMA = \angle PMB$ [each 90°]

$MA = MB$

[PM being bisector of AB]

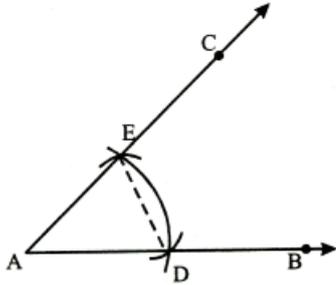
Hence, $\Delta PMA \cong \Delta PMB$ [SAS]

17. On a ray AB with initial point A , taking A as centre and some radius, draw an arc of a circle, which intersects AB , say at a point D . Taking D as centre and with the same radius as before, draw an arc

intersecting the previously drawn arc, say at a point E . Draw the ray AC passing through E . Then, the measure of $\angle CAB$ is

- (a) 45°
- (b) 30°
- (c) 15°
- (d) 60°

Ans : (d) 60°



18. Study the statements carefully and select the correct option.

Statement-I : It is possible to construct a triangle whose sides measure 7 cm, 5 cm and 12 cm.

Statement- II : It is possible to construct an angle of 22.5° using ruler and compass only.

- (a) Statement-I is true and also statement-II is true.
- (b) Statement-I is false but statement-II is true.
- (c) Both statement-I and statement-II are false.
- (d) Both statement-I and statement-II are true.

Ans : (b) Statement-I is false but statement-II is true.

Sum of two sides of a triangle is always greater than third side. But $7+5=12$

Triangle is not possible. Also, angle of 22.5° can be constructed by making angle of 45° and then bisecting it using ruler and compass only.

19. Arrange the following steps of construction of a $\triangle ABC$ in which $BC = 8$ cm, $\angle B = 60^\circ$ and the difference between the other two sides is 3 cm in correct sequence.

Step I : Set off $BP = 3$ cm.

Step II : Draw $BC = 8$ cm.

Step III : Construct $\angle CBX = 60^\circ$.

Step IV : Join AC. Then, $\triangle ABC$ is the required triangle.

Step V : Draw the right bisector of PC , meeting PB produced at A.

Step VI : Join PC .

- (a) II, III, I, VI, V, VI
- (b) II, III, VI, V, IV, I
- (c) II, IV, V, VI, I, III
- (d) I, IV, V, VI, III, II

Ans : (a) II, III, I, VI, V, VI

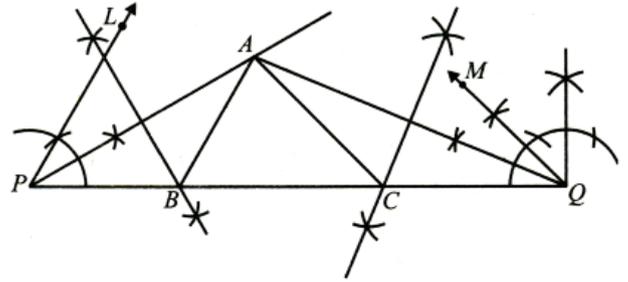
The correct sequence is II, III, I, VI, V, VI.

Download All PDF files from www.rava.org.in.

2. FILL IN THE BLANK

DIRECTION : Study the diagram given below and steps of construction carefully. Compare them and fill suitable words or numbers in the blank boxes.

Construction of a triangle ABC in which $\angle B = 60^\circ$, $\angle C = 45^\circ$ and perimeter = 11 cm.



Steps of Construction

1. Draw a line segment $PQ = (\dots\dots\dots)$ cm. ($= AB + BC + CA$).

Ans : 11

2. At $(\dots\dots\dots)$ construct an angle of 60° and at Q , an angle of $(\dots\dots\dots)$.

Ans : $P, 45^\circ$

3. Bisect these angles. Let the bisectors of these angles intersect at a point $(\dots\dots\dots)$.

Ans : A

4. Draw perpendicular bisectors DE of $(\dots\dots\dots)$ to intersect $(\dots\dots\dots)$ at B and FG of AQ to intersect PQ at $(\dots\dots\dots)$.

Ans : AP, PQ, C

5. Join $(\dots\dots\dots)$ and $(\dots\dots\dots)$. Thus, $(\dots\dots\dots)$ is the required triangle.

Ans : AB, AC, ABC

3. TRUE/FALSE

DIRECTION : Read the following statements and write your answer as true or false.

1. An angle of 52.5° can be constructed.

Ans : True.

As $52.5^\circ = \frac{210^\circ}{4}$ and $210^\circ = 180^\circ + 30^\circ$ which can be constructed.

2. An angle of 42.5° can be constructed.

Ans : False.

As $42.5^\circ = 1/2 \times 85^\circ$ and 85° cannot be constructed.

3. A triangle ABC can be constructed in which $AB = 5$ cm, $\angle A = 45^\circ$ and $BC + AC = 5$ cm.

Ans : False.

As $BC + AC$ must be greater than AB which is not so.

4. A triangle ABC can be constructed in which $BC = 6$ cm, $\angle C = 30^\circ$ and $AC - AB = 4$ cm

Ans : True.

As $AC - AB < BC$, i.e., $AC < AB + BC$.

5. A triangle ABC can be constructed in which $\angle B = 105^\circ$, $\angle C = 90^\circ$ and $AB + BC + AC = 10$ cm.

Ans : False.

As $\angle B + \angle C = 105^\circ + 90^\circ = 195^\circ > 180^\circ$

6. A triangle ABC can be constructed in which $\angle B = 60^\circ$, $\angle C = 45^\circ$ and $AB + BC + AC = 12$ cm.

Ans : True.

As $\angle B + \angle C = 60^\circ + 45^\circ = 105^\circ > 180^\circ$

WWW.CBSE.ONLINE

NO NEED TO PURCHASE ANY BOOKS

For session 2019-2020 free pdf will be available at www.cbse.online for

1. Previous 15 Years Exams Chapter-wise Question Bank
2. Previous Ten Years Exam Paper (Paper-wise).
3. 20 Model Paper (All Solved).
4. NCERT Solutions

All material will be solved and free pdf.

Disclaimer : www.cbse.online is not affiliated to Central Board of Secondary Education, New Delhi in any manner. www.cbse.online is a private organization which provide free study material pdfs to students. At www.cbse.online CBSE stands for Canny Books For School Education.