

VAISHALI EDUCATION POINT

(QUALITY EDUCATION PROVIDER)

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CONSTRUCTIONS

Class :- X

Subject :- Maths

Total Time :- SET A

Total Marks :- 240

General Instructions

QNo.	Questions
1	Divide a line segment 6 cm long in the ratio 4 : 3 . Prove your assertion.
2	Construct a $\triangle ABC$ in which $AB = 4$ cm, $BC = 5$ cm and $AC = 6$ cm. Now, construct a triangle similar to $\triangle ABC$ such that each of its sides is $\frac{2}{3}$ of the corresponding side of $\triangle ABC$.
3	Construct a $\triangle ABC$ in which $AB = 4$ cm, $\angle B = 60^\circ$ and altitude $CL = 3$ cm. Construct a $\triangle ADE$ similar to $\triangle ABC$ such that each side of $\triangle ADE$ is $\frac{3}{2}$ times that of the corresponding side of $\triangle ABC$.
4	Draw a circle of radius 5 cm. Take a point P on it. Without using the centre of the circle construct a tangent at the point P.
5	Draw a line segment AB of length 6.5 cm and divide it in the ratio 4 : 7. Measure each of the two parts.
6	Draw a line segment PQ of length 5.8 cm and divide it in the ratio 5 : 3. Measure each of the two parts.
7	Construct a $\triangle ABC$ in which $AB = 5$ cm, $BC = 6$ cm and $CA = 7$ cm. Construct a triangle similar to $\triangle ABC$ such that each of its sides is $\frac{5}{7}$ of the corresponding side of $\triangle ABC$.
8	Construct a $\triangle PQR$ in which $QR = 6$ cm, $PQ = 5$ cm and $\angle PQR = 60^\circ$. Now, construct a triangle similar to $\triangle PQR$ such that each of its sides is $\frac{3}{5}$ of the corresponding side of $\triangle PQR$.
9	Construct an isosceles $\triangle ABC$ having base $BC = 6$ cm and altitude = 4 cm. Now, construct a triangle similar to $\triangle ABC$, each of whose sides is $\frac{3}{2}$ times the corresponding side of $\triangle ABC$.
10	Draw a $\triangle ABC$ in which $BC = 5.4$ cm, $\angle B = 45^\circ$ and $\angle A = 105^\circ$. Now, construct a triangle similar to $\triangle ABC$, each of whose sides is $\frac{4}{3}$ of the corresponding side of $\triangle ABC$.
11	Draw a $\triangle ABC$, right angled at B such that $AB = 3$ cm and $BC = 4$ cm. Now, construct a triangle similar to $\triangle ABC$, each of whose sides is $\frac{7}{5}$ times the corresponding side of $\triangle ABC$.
12	Construct a $\triangle ABC$ in which $BC = 5$ cm, $CA = 6$ cm and $AB = 7$ cm. Construct a $\triangle A'BC'$ similar to $\triangle ABC$, each of whose sides is $\frac{7}{5}$ times the corresponding side of $\triangle ABC$.

13	Draw a circle of radius 2 cm with centre O and take a point P outside the circle such that $OP = 4.5$ cm. From P, draw two tangents to the circle.
14	Draw a circle of radius 2.5 cm and take a point P outside it. Without using the centre of the circle, draw two tangents to the circle from the point P.
15	Draw a circle of radius 3 cm. Draw a pair of tangents to this circle, which are inclined to each other at an angle of 60° .
16	Draw a circle of radius 5 cm. From a point P, 8 cm away from its centre, construct a pair of tangents to the circle. Measure the length of each one of the tangents.
17	Draw two concentric circles of radii 4 cm and 6 cm. Construct a tangent to the smaller circle from a point on the larger circle. Measure the length of this tangent.
18	Draw two concentric circles of radii 4 cm and 6 cm. Construct a tangent to the smaller circle from a point on the larger circle. Measure the length of this tangent.
19	Draw a circle of radius 3.5 cm. Take two points A and B on one of its extended diameters, each at a distance of 7 cm from its centre. Draw tangents to the circle from each of these points A and B.
20	Draw a circle of radius 4.2 cm. Draw a pair of tangents to this circle inclined to each other at an angle of 45° .
21	Draw a line segment AB of length 8.5 cm. With A as centre, draw a circle of radius 4 cm. With B as centre, draw another circle of radius 3 cm. From the centre of each circle, draw a tangent to the other circle.
22	Draw a line segment AB of length 8.5 cm. With A as centre, draw a circle of radius 4 cm. With B as centre, draw another circle of radius 3 cm. From the centre of each circle, draw a tangent to the other circle.
23	Draw a circle of radius 3 cm. Draw a tangent to the circle making an angle of 30° with a line passing through the centre.
24	Draw a circle of radius 4 cm. Draw a tangent to the circle making an angle of 60° with a line passing through the centre.
25	Construct a Triangle Similar to a given triangle with sides 6cm., 7cm & 8cm; and whose sides are $\frac{7}{5}$ th of the corresponding sides of the given triangle.
26	Draw a triangle ABC with side BC 6 cm, AB = 5cm & $\angle ABC = 60^\circ$. Then construct a triangle whose sides are $\frac{3}{4}$ of the corresponding sides of the triangle ABC.
27	Draw a Triangle ABC with sides BC = 7cm, $\angle B = 45^\circ$, $\angle A = 105^\circ$. Then construct a Triangle whose sides are $\frac{4}{3}$ times the corresponding sides of $\triangle ABC$.
28	Draw a tangent to the circle (with radius 3.0cm) making an angle of 30° with a line passing through the centre.
29	Draw a circle of radius 2.5cm. Draw two tangents to it inclined at an angle of 60° to each other.
30	Construct a tangent to a circle of radius 4cm from a pt. on the concentric circle of radius 6cm & measure its length. Also verify the measurement by actual calculation.

31	Draw a circle of any radius. Take a point outside the circle. Construct the pair of tangents from this point to the circle.
32	ABC be a right triangle in which $AB = 3\text{cm}$, $BC = 4\text{cm}$ & $\angle B = 90^\circ$. BD is the perpendicular from B to AC. The circle through B, C, D is drawn. Construct tangent from A to this circle.
33	Draw a circle of radius 3cm. Take two point P & Q on one of its extended diameter each at a distance of 7cm from its centre. Draw tangent to the circle from these two points P & Q.
34	Draw a circle of radius 4cm. Draw two tangents to this circle so that the angle b/w the tangent is 45° .
35	Draw a circle of radius 5cm. From a point P, 8cm away from it centre, Construct a pair of tangents to the circle. Measure the length of each one of the tangents.
36	Draw a circle of Radius 5cm. Take a pt. P on it. Without using the centre of the circle construct a tangent at the pt. P.
37	Construct a $\triangle ABC$ in which $AB = 4\text{ cm.}$, $\angle B = 60^\circ$ & attitude $CL = 3\text{ cm}$. Construct a $\triangle ADE$ similar to $\triangle ABC$ such that each side of $\triangle ADE$ is $\frac{3}{2}$ times that of the corresponding side of $\triangle ABC$.
38	Draw a line segment PQ of length 9cm & divide it in the ratio 4 : 3. Measure each of the two parts.
39	Construct a triangle if its perimeter is 10.4 cm and base angles 45° and 120° .
40	Construct $\triangle PQR$ in which $PQ = 4.4\text{ cm}$, $\angle R = 65^\circ$ and median to $PQ = 4\text{ cm}$.
41	Construct $\triangle ABC$ in which $PC = 5\text{ cm}$, $\angle A = 50^\circ$ and median $AD = 3.5\text{ cm}$.
42	Construct $\triangle XYZ$, given that $YZ = 7\text{ cm}$, $\angle X = 60^\circ$ and P, the foot of perpendicular XP , is such that $YP = 4.5\text{ cm}$.
43	Construct a triangle XYZ in which $XY = 6.6\text{ cm}$, $\angle Z = 60^\circ$ and altitude to XY is 4 cm.
44	Construct triangle PQR similar to a given triangle ABC if the scale factor is $\frac{5}{6}$
45	Construct an isosceles triangle ABC. Construct a similar triangle PQR with its corresponding sides being $\frac{4}{3}$ times those of $\triangle ABC$.
46	Construct a triangle similar to a given $\triangle ABC$ with each of its sides equal to $\frac{5}{6}$ of the corresponding side of $\triangle ABC$ if is given that $AB = 5\text{ cm}$, $BC = 7.4\text{ cm}$ and $\angle ABC = 75^\circ$.
47	Construct a quadrilateral ABCD such that $AB = 3\text{ cm}$, $AD = 2.7\text{ cm}$, $DB = 3.6\text{ cm}$ $\angle B = 110^\circ$ and $BC = 4.2\text{ cm}$. Construct another quadrilateral A'B'C'D' similar to the quadrilateral ABCD so that the diagonal $BD' = 4.8\text{ cm}$ corresponds to the diagonal BD .
48	A, B and C are three non-collinear points such that $AB = 3.5\text{ cm}$, $BC = 4.8\text{ cm}$ and $CA = 6\text{ cm}$. Construct a circle passing through A, B and C. Find the measure of circumradius.
49	Construct a circle with the help of a bangle or a circular lid. Determine its centre.
50	Construct an arc of a circle as determine its centre.

51	Construct a circle C (O, 3). Take a chord, say AB, of length 4.8 cm. Construct tangents to the circle at points A and B meeting at a point, say P.
52	Mark a point P outside a circle C (O, 2) such that OP = 4 cm. Draw two tangent segments to the circle from P.
53	Construct a circle C(O, 2). Draw two tangent-segments PT and PT' from a point P in the exterior of the circle such that $\angle TPT' = 45^\circ$.
54	Construct a circle of radius 3 cm. Take a point P on it. Construct a tangent to the circle at P without using the centre of the circle.
55	Construct a cyclic quadrilateral PQRS such that PQ = 3 cm, PR = 4 cm, PS = 3.5 cm and $\angle S = 90^\circ$.
56	Construct a cyclic quadrilateral ABCD in which AC = 5 cm, $\angle BAC = 30^\circ$, $\angle CBA = 90^\circ$ and AD = 3 cm.
57	Two circles of radii 3 cm and 4 cm touch each other externally. Construct the pair of direct common tangents to the two circles.
58	Two circles of radii 4 cm and 3 cm have their centres at a distance of 9 cm. Construct the pair of direct common tangents to the circles.
59	Construct a quadrilateral ABCD in which AB = 2.5 cm, BC = 3.5 cm, AC = 4.2 cm, CD = 3.5 cm and AD = 2.5 cm. Construct another quadrilateral AB'C'D' with diagonal AC' = 6.3 cm such that it is similar to quadrilateral ABCD.
60	Draw a line-segment AB = 7 cm. Divide it externally in the ratio of (i) 3 : 5, (ii) 5 : 3.
61	Construct the circumcircle and the incircle of the following triangle ABC: (i) AB = 4 cm, BC = 5 cm and AC = 6 cm. (ii) AB = 5 cm, BC = 7 cm and $\angle ABC = 50^\circ$; and (iii) BC = 6 cm, $\angle B = 55^\circ$ and $\angle C = 70^\circ$.
62	Divide a given line segment PQ externally in the ratio 3 : 5. Write the steps of construction.
63	Construct a cyclic quadrilateral ABCD where AB = 3 cm, BC = 6 cm, CA = 4 cm and AD = 2 cm. Also, construct a quadrilateral similar to ABCD whose sides are 1.5 times the corresponding sides of ABCD.
64	Draw a line segment of length 6 cm. Using compasses and ruler, find a point P on it which divides it in the ratio 3 : 4. (2011)
65	Draw a triangle PQR such that PQ = 5 cm, $\angle P = 120^\circ$ and PR = 6 cm. Construct another triangle whose sides are $\frac{3}{4}$ times the corresponding sides of PQR. (2011)
66	Construct a triangle ABC in which BC = 8 cm, $\angle B = 45^\circ$ and $\angle C = 30^\circ$. Construct another triangle similar to ABC such that its sides are $\frac{3}{4}$ of the corresponding sides of ABC. (2010)
67	Draw a triangle ABC with side BC = 6 cm, AB = 5 cm and $\angle ABC = 60^\circ$. Then construct a triangle whose sides are $\frac{3}{4}$ times the corresponding sides of ABC. (2010)
68	Draw a triangle ABC with side BC = 7 cm, $\angle B = 45^\circ$ and $\angle A = 105^\circ$. Then construct a triangle whose sides are $\frac{3}{5}$ times the corresponding sides of ABC. (2011)

69	Divide a line segment of length $AB = 6$ cm into $2 : 3$ internally.
70	Draw a line $AB = 12$ cm and divide it in the ratio $= 3 : 5$. Measure the two parts.
71	Construct a $\triangle ABC$ in which $BC = 6.5$ cm, $AB = 4.5$ cm and $\angle ABC = 60^\circ$. Construct a triangle similar to this triangle whose sides are $\frac{3}{4}$ th of the corresponding sides of the triangle ABC .
72	Construct a triangle ABC in which $AB = 6$ cm, $\angle B = 60^\circ$ and $AC = 7$ cm. Construct a triangle similar to triangle ABC whose sides are $\frac{4}{7}$ of the corresponding sides.
73	Construct a $\triangle ABC$ in which $CA = 6$ cm , $AB = 5$ cm and $\angle BAC = 45^\circ$, then construct a triangle similar to the given triangle whose sides are $\frac{6}{5}$ times of the corresponding sides of the $\triangle ABC$.
74	Draw a right. $\triangle ABC$, in which $\angle B = 90^\circ$, $AB = 4$ cm, $BC = 5$ cm. Then construct another $\triangle A'B'C'$ whose sides are $\frac{5}{3}$ times the corresponding sides of $\triangle ABC$.
75	Construct a $\triangle ABC$ in which $AB = 6.5$ cm, $\angle B = 60^\circ$ and $BC = 5.5$ cm. Also construct a triangle $AB'C'$ similar to $\triangle ABC$, whose each side is $\frac{3}{2}$ times the corresponding side of the $\triangle ABC$.
76	Construct a triangle PQS such that $PQ = 4.5$ cm, $PS = 4$ cm and $SQ = 5.4$ cm. Construct another triangle $P'Q'S'$ similar to triangle PQS with side $S'Q = 7.2$ cm.
77	Draw a circle of radius 3 cm. From a point 5 cm away from the centre of the circle, draw two tangents to the circle. Find the length of the tangents.
78	Draw a circle of diameter 8 cm. From a point P , 7 cm away from its centre, construct a pair of tangents to the circle. Measure the lengths of the tangents segments.
79	Draw a line segments AB of length 7 cm. Taking A as centre, draw a circle of radius 3 cm and taking B as centre, draw another circle of radius 2.5 cm. Construct tangents to each circle from the centre of the other circle.
80	Construct a triangle similar to a given $\triangle ABC$ such that each of its sides is $\frac{2}{3}$ rd of the corresponding side of the $\triangle ABC$. It is given that $AB = 4$ cm, $BC = 5$ cm and $AC = 6$ cm. Also write the steps of construction.
81	Draw any triangle ABC . Construct another triangle $AB'C'$ similar to the triangle ABC with each side equal to $\frac{4}{5}$ th of the corresponding side of triangle ABC . Write the steps of construction also.