9th class math 11 Review Exercise

Q. 1 Choose the correct option.

i. A triangle can be constructed if the sum of the measure of any two sides is
the measure of the third side.

(a) less than (b) greater than (c) equal to (d) greater than and equal to

ii. An equilateral triangle .

(a) can be isosceles (b) can be right angled (c) can be obtuse angled (d) has each angle equal to $50°$

iii. If the sum of the measures of two angles is less than $90°$, then the triangle is,

(a) equilateral (b) acute angled (c) obtuse angled (d) right angled

iv. The line segment joining the midpoint of a side to its opposite vertex in a triangle is called

(a) median (b) perpendicular bisector (c) angle bisector (d) circle

v. The angle bisectors of a triangle intersect at .

(a) one point (b) two points (c) three points (d) four points

vi. Locus of all points equidistant from a fixed point is:

(a) circle (b) perpendicular bisector (c) angle bisector (d) parallel bisector

vii. Locus of points equidistant from two fixed points is:

(a) circle (b) perpendicular bisector (c) angle bisector (d) parallel lines

viii. Locus of points equidistant from a fixed line is / are:

(a) circle (b) perpendicular bisector (c) angle bisector (d) parallel lines

ix. Locus of points equidistant from two intersecting lines is

(a) circle (b) perpendicular bisector (c) angle bisector (d) parallel lines

x. The set of all points which is farther than 2 km from a fixed point B is a region outside a círcle of radius and centre at B.

(a) 1 km (b) 1.9 km (c) 2 km (d) 2.1 km

Answers Key

i	b	ii	a	iii	c	iv	a	v	a
vi	a	vii	b	viii	d	ix	c	x	c

Multiple Choice Questions (Additional)

1.Which of the following is used to measure the angle?

(a)compass (b) protector (c) scale (d) set square

2. Which of the following can be constructed by compass?
(a) $105°$ (b) $125°$ (c) $130°$ (d) $55°$
3. Which of the following cannot be constructed with compass?
(a) $15°$ (b) $30°$ (c) $45°$ (d) $95°$
4. Sum of interior angles of a triangle is:
(a) $60°$ (b) $120°$ (c) $180°$ (d) $240°$
5. In right-angled triangle one angle is right, other two angles are:
(a) right (b) obtuse (c) acute (d) one acute , one obtuse
6. A triangle having all sides equal is called:
(a) Isosceles (b) Scalene (c) Equilateral (d) right
7. A triangle having all sides different is called:
(a) Isosceles (b) Scalene (c) Equilateral (d) right
8.A triangle having two sides congruent is called:
(a) Scalene (b) Right angled (c) Equilateral (d) Isosceles
9. The right bisectors of the three sides of a triangle are:
(a) Congruent (b) Collinear (c) Concurrent (d) Parallel
10. The angle bisectors of the angles of a triangle are:
(a) Congruent (b) Collinear (c) Concurrent (d) Parallel
11. If two medians of a triangle are congruent then the triangle will be:
(a) Isosceles (b) Equilateral (c) Right angled (d) Acute angled
12. A perpendicular from a vertex of triangle to the opposite side is called:
(a)Altitude (b) Median (c) Angle bisector (d) Right bisector
13. The point of concurrency of the three altitudes of a Δ is called its:
(a) Ortho centre (b) In centre (c) Circumcentre (d) centroid
14. The bisectors of the angles of a triangle meet at a point called:
(a)In centre (b) Ortho centre (c) Circumicentre (d) centroid
15.The point of concurrency of the three right bisectors of the sides of a triangle is called:
(a) Circumcentre (b) In centre (c) Ortho centre (d) centroid
16.Point of concurrency of three medians of a triangle is called its:
(a) In centre (b) Ortho centre (c) Centroid (d) Circumcentre
17.In-centre is the point of concurrency of three of triangle.
(a) Right bisectors (b) Angle bisectors (c) Altitudes (d) Medians
18.Circumcentre is the point of concurrency of three of triangle.
(a) right bisectors (b) angle bisectors (c) altitudes (d) medians
19.Ortho centre is the point of concurrency of three of triangle.
(a) right bisectors (b) angle bisectors (c) altitudes (d)medians
20. Centroid is the point of concurrency of three of triangle.
(a)right bisectors (b) angle bisectors (c) altitudes (d) medians

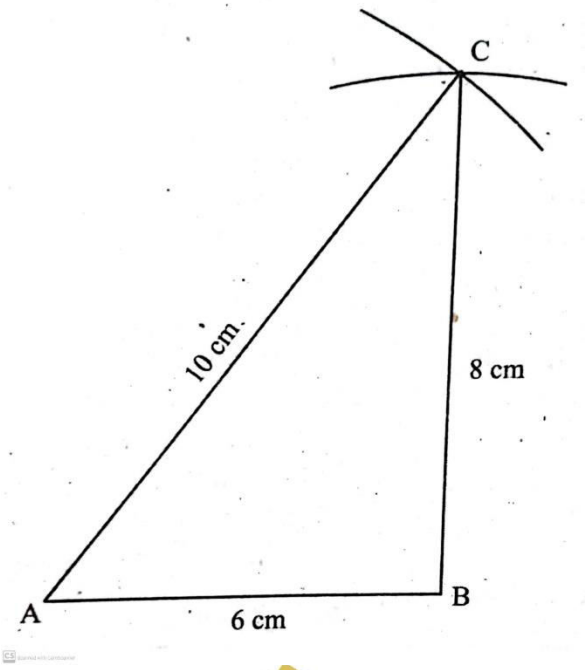
21. If in-center, circumcenter, orthocenter and centroid of a triangle coincide then triangle is:
(a)Isosceles (b) Equilateral (c)Right angled (d) Acute angled
22.The circum center of right triangle lies on the of triangle.
(a) vertex (b) altitude (c) hypotenuse (d) base
23. The ortho center of an acute triangle lies
of triangle.
(a) Inside (b) outside (c) Midpoint (d) vertex of
24. The in-center of any triangle always lies
the triangle.
(a) Outside (b) Inside (c) Midpoint (d) on base of
25. The centroid of any triangle always lies
the triangle.
(a) Outside (b) Inside (c) Midpoint (d) on base of
26. Locus is a word.
(a) English (b) German (c) French (d) Latin
27. A locus is a set of points that follow a given:
(a) Instructions (b) rule (c) variable (d) value
28.To find the location equidistant from two towns, which locus do we have to draw?
(a) circle (b) right bisector (c) angle bisector (d) Parallel lines
29. The garbage dumping area must be 5 km away from the city. Which locus do we have to draw?
(a) circle (b) right bisector (c) angle bisector (d) Parallel lines
30. A locus of point equidistant from a line segment creates a shape:
(a) circle (b) triangle (c) sausage (d) rectangle

Answer Key

1	b	2	a	3	d	4	c	5	c	6	c	7	b	8	d	9	c	10	c
11	a	12	a	13	a	14	a	15	a	16	c	17	b	18	a	19	c	20	d
21	b	22	c	23	a	24	b	25	b	26	d	27	b	28	b	29	a	30	c

Q. 2 Constant a right angled triangle with measures of sides $6\ \text{cm}, 8\ \text{cm}$ and 10 cm .

Let $m\overline{AB} = 6$ cm, $m\overline{BC} = 8$ cm, $m\overline{AC} = 10$ cm



Steps of construction:

i. Let $m\overline{AB} = 6$ cm, $m\overline{BC} = 8$ cm, $m\overline{AC} = 10$ cm

ii. Draw $m\overline{AB} = 6$ cm.

iii. Taking B as a centre, draw an arc of radius 8 cm.

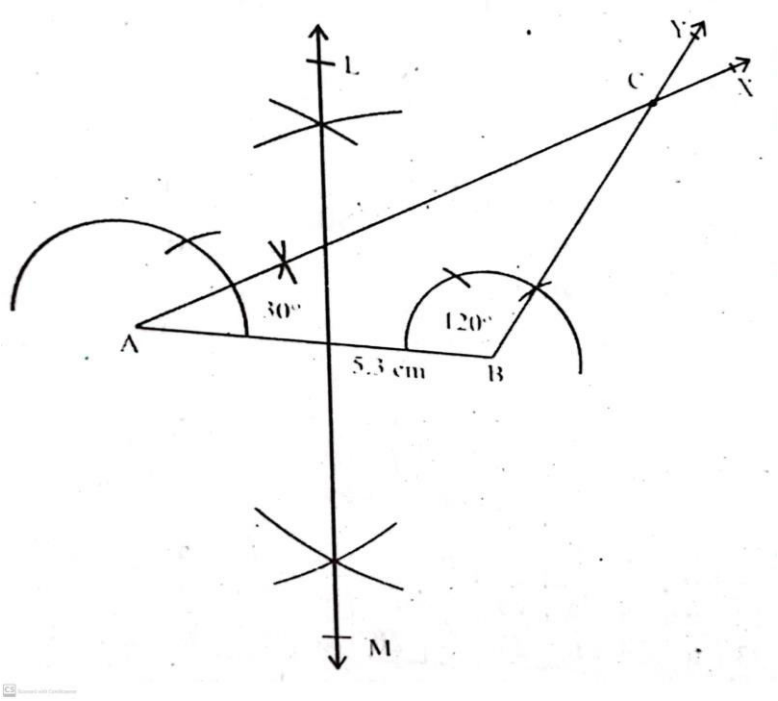
iv. Taking A as a centre, draw another arc of radius 10 cm which cuts the previous arc at point C .

v. Join point C to A and B .

Thus $\triangle ABC$ is required triangle.

Q3 Construct a triangle ABC with $m\overline{AB} = 5.3$ cm, $m\angle A = 30°$ and $m\angle B = 120°$. Solution:

$$m\overline{AB} = 5.3 \text{ cm}, m\angle A = 30°, m\angle B = 120°$$



Steps of construction :

I Draw $m\overline{\triangle B} = 5.3$ cm .

ii Using compass draw $m\angle A = 30°$ and draw $A\dot{X}$

iii Using compass draw $m\angle B = 120°$ and draw $B\dot{Y}$

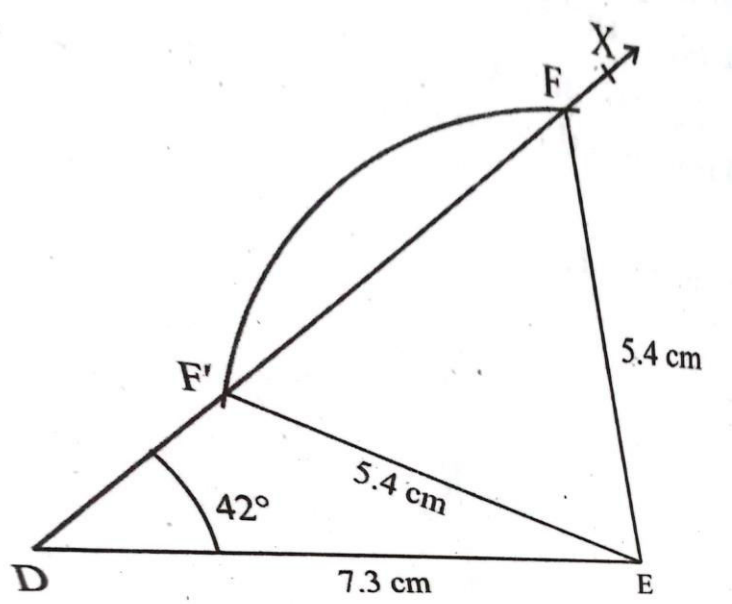
iv Both rays, $\overrightarrow{AX}$ and $B\dot{Y}$ intersectedeh other at point C . Thus, $\triangle\triangle$ BC in a roguired triangle

v Draw the right bisector $L\dot{M}$ of the side AB which is the locus of all the poines that are cquidistant from ∧ and B .

Q. 4 Construct a triangle with $\mathrm{m}\overline{\mathrm{DE}} = 7.3$ cm, $\mathrm{m}\angle\mathrm{D} = 42°$ and $\mathrm{m}\overline{\mathrm{EF}} = 5.4$ cm .

Solution :

$$m\overline{DE} = 7{,}3 \text{ cm}, m\angle D = 42°, m\overline{EF} = 5.4 \text{ cm}$$



Steps of construction:

i. Draw $m\overline{DE} = 7.3$ cm

ii. Construct $m\angle D = 42°$ with the help of protractor and ruler and draw $m\overrightarrow{DX}$.

iii. With center E , draw an arc of radius 5.4 cm intersecting $\overrightarrow{DX}$ at F and F'.

iv. Join E to F and E to F'..

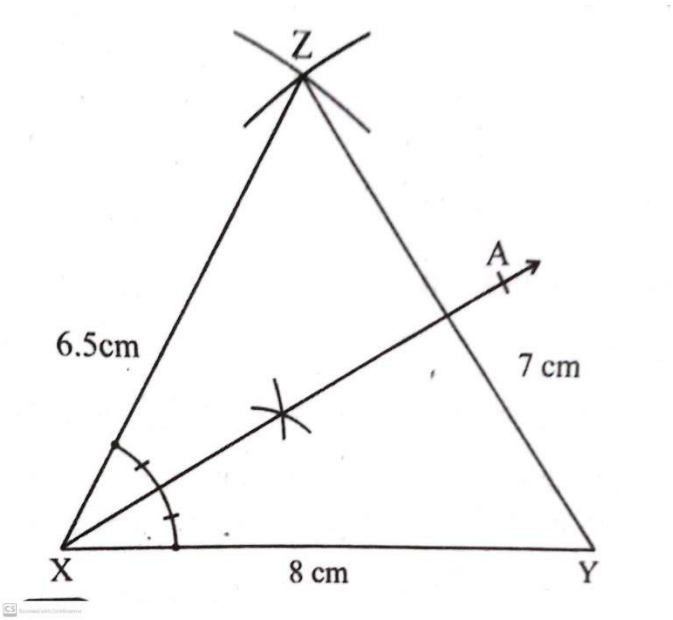
Thus two triangles $\triangle DEF$ and $\triangle DEF'$ are constructed according to the given

Q. 5 Construct a triangle XYZ with $m\overline{XX} = 8$ cm, $m\overline{YZ} = 7$ cm and $m\overline{XZ} = 6.5$ cm. measurements.

Draw a locus of all points which are equidistant from $\overline{\text{XY}}$ and $\overline{\text{XZ}}$

Solution:

$$\text{m}\overline{\text{XY}} = 8 \text{ cm}, \text{m}\overline{\text{YZ}} = 7 \text{ cm}, \text{m}\overline{\text{XZ}} = 6.5 \text{ cm}$$



Steps of construction:

i. Draw $m\overline{XY} = 8$ cm.

ii. Taking Y as a centre, draw an arc of radius 7 cm .

iii. Taking X as a centre, draw another arc of radius 6.5 cm which cuts the previous are at point Z.

iv. Join point Z to X and Y . Thus $\triangle XYZ$ is a required triangle.

v. Draw angle bisector $\overrightarrow{XA}$ of $\angle X$ which is the locus of all the points that are equidistant from sides $\overline{XY}$ and $\overline{XZ}$.

Q. 6 Construct a triangle FGH with $\mathrm{m}\overline{\mathrm{FG}} = \mathrm{m}\overline{\mathrm{GH}} = 6.4$ cm, $\mathrm{m}\angle\mathrm{G} = 122°$. Draw the locus of all points which are:

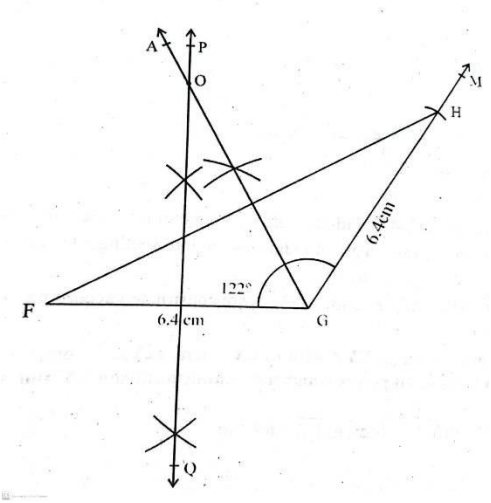
(a) equidistant from F and G,

(b) equidistant from $\overline{\mathrm{FG}}$ and $\overline{\mathrm{GH}}$

(c) Mark the point where the two loci intersect.

Solution:

$$\mathrm{m}\overline{\mathrm{FG}} = \mathrm{m}\overline{\mathrm{GH}} = 6.4 \text{ cm}, \mathrm{m}\angle\mathrm{G} = 122°$$



Steps of construction:

i. Draw $m\overline{FG} = 6.4$ cm.

ii. Using protractor draw $m\angle G = 122°$ and draw $\overrightarrow{GM}$.

iii. Taking G as a centre, draw an arc of radius 6.4 cm which cuts the $\overrightarrow{GM}$ at point H .

iv. Join point F to H. Thus $\triangle FGH$ is a required triangle.

v. Draw the right bisector $\overleftrightarrow{PQ}$ of the side FG which is the locus of all the points that are equidistant from F and G.

vi. Draw angle bisector $\overrightarrow{GA}$ of $\angle G$ which is the locus of all the points that are equidistant from sides $\overline{FG}$ and $\overline{GH}$.

vii. O is the point where two loci intersect each other.

Q. 7 Two houses Q and R are 73 metres apart. Using a scale of 1 cm to represent 10 m , construct the locus of a point P which moves such that it is:

(i) at a distance of 32 metres form Q

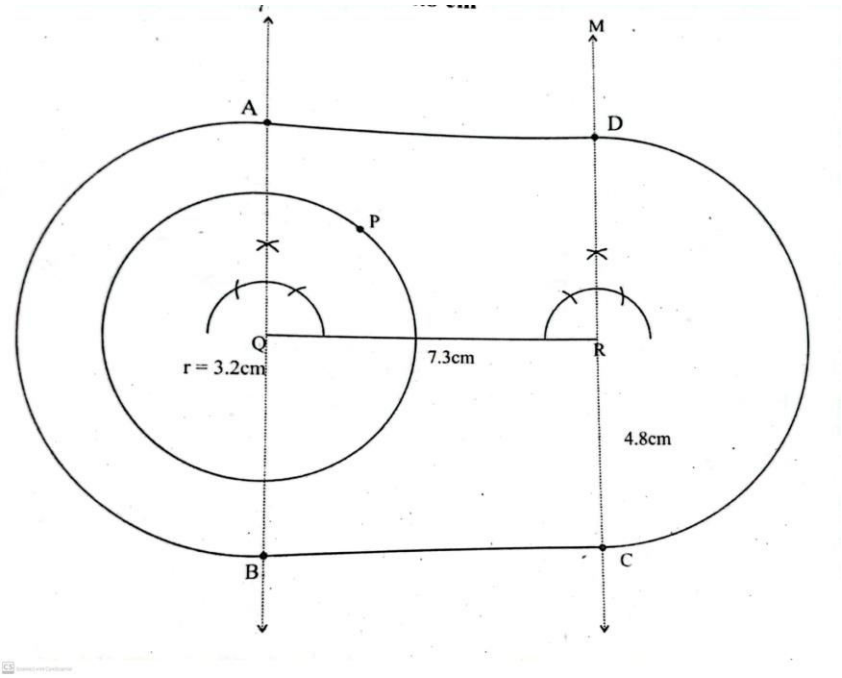
(ii) at a distance of 48 metres from the line joining Q and R.

Solution:

Distance of R from $\mathrm{Q} = 73$ m i.e. $\mathrm{m}\overline{\mathrm{QR}} = 7.3$ cm

Distance of P from $\mathrm{Q} = 32$ m i.e. $\mathrm{m}\overline{\mathrm{PQ}} = 3.2$ cm

Distance of P from $\overline{PQ} = 48$ m i.e. $= 4.8$ cm



Steps of construction:

Using scale of $10\ \text{m} = 1\ \text{cm}$ we get $73\ \text{m} = 7.3\ \text{cm}, 32\ \text{m} = 3.2\ \text{cm}, 48\ \text{m} = 4.8\ \text{cm}$

i. Draw $m\overrightarrow{QR} = 7.3\ \text{cm}$ showing that two points Q and R are 7.3 cm apart

ii. Taking point Q as a centre, draw a circle of radius 3.2 cm which is the locus of a moving point P at a distance of $3.2\ \text{cm}(32\ \text{m})$ from point Q.

iii. Draw perpendicular lines l and m at endpoints Q and R respectively.

iv. Taking point Q as a centre, draw a serni-circle of radius 4.8 cm on the left side of Q cutting the line "l" at A and B .

v. Taking point R as a centre, draw a semi- circle of radius 4.8 cm on the right side of R cutting the line " m " at C and D .

vi. Join A to D and B to C.

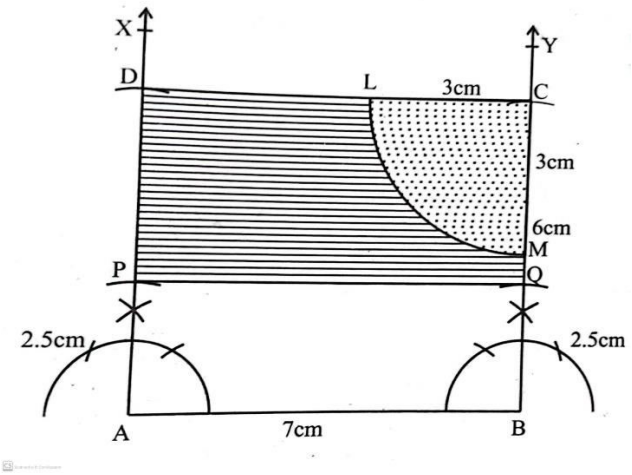
Thus the path ABCD including both semicircular paths around the $\overline{QR}$ is the locus of moving point P which is at a distance of $4.8\ \text{cm}(48\ \text{m})$ from the $\overline{QR}$.

Q. 8 The field is in the form a rectangle $ABCD$ with $m\overline{AB} = 70m$ and $m\overline{BC} = 60m$. construct the rectangle $ABCD$ using a scale of 1 cm to represent 10 m . Show the region inside the field which is less than 30 m from C and farther than 25 m from $\overline{\text{AB}}$.

Solution:

$m\overline{\mathrm{AB}} = 70$ m i.e. $m\overline{\mathrm{AB}} = 7$ cm

$m\overline{\mathrm{BC}} = 60$ m i.e. $m\overline{\mathrm{BC}} = 6$ cm



Steps of construction:

Using scale of 10 m $= 1$ cm we get

$$m\overrightarrow{AB} = 70m \Rightarrow m\overrightarrow{AB} = 7 \text{ cm}$$

$$m\overrightarrow{BC} = 60m \Rightarrow m\overrightarrow{BC} = 6 \text{ cm}$$

i. Draw $m\overline{AB} = 7$ cm

ii. Draw perpendiculars $\overrightarrow{AX}$ and $\overrightarrow{BY}$ at point A and B respectively.

iii. Taking A and B as a centre, draw two arcs of radius 6 cm which cuts the $\overrightarrow{AX}$ and $\overrightarrow{BY}$ at points D and C respectively.

iv. Join C to D and get a required rectangle ABCD of given measurements.

v. Taking point C as a centre, draw an arc of radius 3 cm from the side CD to CB which is a quarter of a citcle and its interior is the region which is less than 3 cm$(30$ m$)$ from point C.

vi. Taking A and B as a centres, draw two arcs of radius 2.5 cm which cuts the sides $\overline{AD}$ and $\overline{BC}$ at points P and Q respectively.

vii. Join P to Q . The interior region of rectangle PQCD is the region inside the rectangle ABCD which is farther than 2.5 cm$(25$ m$)$ from the side AB .