

**INTERNATIONAL INDIAN SCHOOL - DAMMAM**

**MATHS WORK SHEET 2024 - 25**

**CLASS- IX CHAPTER – 7 TRIANGLES**

**Q1.** Which of the following is not a criterion for congruence of triangles ?

- a) SSA                      b) SAS                      c) ASA                      d) SSS

**Q2.** In  $\triangle ABC$ ,  $BC = AB$  and  $\angle B = 70^\circ$ . Then  $\angle A$  is equal to:

- a)  $80^\circ$                       b)  $40^\circ$                       c)  $55^\circ$                       d)  $100^\circ$

**Q3.** If  $\triangle ABC \cong \triangle LKM$ , then side of  $\triangle LKM$  equal to side  $AC$  of  $\triangle ABC$  is:

- a)  $LK$                       b)  $KM$                       c)  $LM$                       d) None of these

**Q4.**  $\triangle LMN$  is an isosceles triangle such the  $LM = LN$  and  $\angle N = 65^\circ$ . The value of  $\angle L$  is:

- a)  $\angle L = 55^\circ$                       b)  $\angle L = 45^\circ$                       c)  $\angle L = 50^\circ$                       d)  $\angle L = 65^\circ$ .

**Q5.** In a right triangle, the longest side is:

- a) Perpendicular                      b) Hypotenuse                      c) Base                      d) None of the above

**Q6.** In triangles  $ABC$  and  $PQR$ ,  $AB=QP$ ,  $\angle B = \angle P$ , and  $BC =PR$ , then triangles are congruent by

- a) SAS                      b) ASA                      c)SSS                      d) RHS

**Q7.** For two triangles, if two sides and the included angle of one triangle are equal to two sides and the included angle of another triangle. Then the congruency rule is:

- a) SSS                      b) ASA                      c) SAS                      d) None of the above

**Q8.** If  $\triangle ABC \cong \triangle PQR$  and  $\triangle ABC$  is not congruent to  $\triangle RPQ$ , then which of the following is not true?

- a)  $BC= PQ$                       b) $AC = PR$                       c)  $QR= BC$                       d) $AB = PQ$

**Q9.** If  $AB = QR$ ,  $BC=PR$  and  $CA = PQ$  then,

- a)  $\triangle ABC \cong \triangle PQR$                       b)  $\triangle CBA \cong \triangle PRQ$                       c)  $\triangle BAC \cong \triangle RPQ$   
d)  $\triangle PQR \cong \triangle BCA$

**Q10.** In  $\triangle PQR \cong \triangle EFD$ , then  $ED =$

- a)  $\angle P$                       b)  $PR$                       c)  $\angle R$                       d)  $PQ$

**Q11.** In triangles  $ABC$  and  $PQR$ ,  $AB = AC$ ,  $\angle C = \angle P$  and  $\angle B = \angle Q$ . The two triangles are:

- a) Isosceles but not congruent                      b) Isosceles and congruent  
c) Congruent but not isosceles                      d) Neither congruent nor isosceles

**Q12.** If the 3 altitudes of a triangle are equal, then the triangle is :

- a) Scalene triangle
- b) Right-angled triangle
- c) Equilateral triangle
- d) Isosceles triangle

Q13. Ritish wants to prove that  $\triangle FGH \cong \triangle JKL$  using SAS rule. He knows that  $FG = JK$  and  $FH = JL$ . What additional piece of information does he need?

- a)  $\angle F = \angle J$
- b)  $\angle H = \angle L$
- c)  $\angle G = \angle K$
- d)  $\angle F = \angle G$ .

Q14. Corresponding sides of congruent triangles are---

- a) Parallel
- b) Perpendicular
- c) Equal
- d) Proportional

Q15. In triangles, ABC and DEF,  $AB = FD$  and  $\angle A = \angle D$ . The two triangles will be congruent by SAS axiom if

- a)  $BC = EF$
- b)  $AC = DE$
- c)  $AC = EF$
- d)  $BC = DE$

In each of the following questions, 16 to 18 a statement of Assertion (A) is followed by a corresponding statement of Reason (R). Choose the correct option.

- (a) Both assertion (A) and reason (R) are true, and reason (R) is the correct explanation of assertion (A).
- (b) Both assertion (A) and reason (R) are true, and reason (R) is not the correct explanation of assertion (A).
- (c) Assertion (A) is true but reason (R) is false.
- (d) Assertion (A) is false, but reason (R) is true.

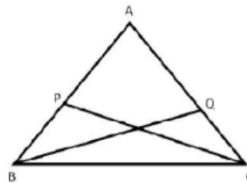
Q16. ASSERTION (A) : Each angle of an equilateral triangle is  $60^\circ$ .

REASON (R) : Angles opposite to equal sides of triangle are equal.

Q17. ASSERTION (A) : In  $\triangle ABC$  and  $\triangle PQR$ ,  $AB = PQ$ ,  $AC = PR$  and  $\angle BAC = \angle QPR$ ,  $\triangle ABC \cong \triangle PQR$ .

REASON (R): Both the triangles are congruent by SSS congruence.

Q18. ASSERTION (A): In  $\triangle ABC$ ,  $AB = AC$ , If P is a point on AB and Q is a point on AC such that  $AP = AQ$ , then  $\triangle APC \cong \triangle AQB$ .

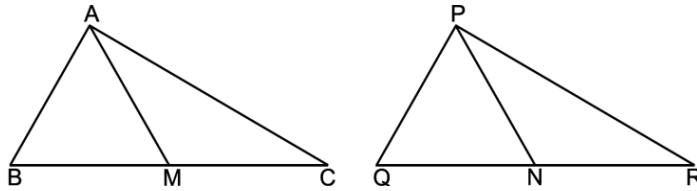


REASON (R): If two corresponding sides and included angle of two triangles are equal, then by SAS congruence criteria, both triangles are congruent.

Q19. Prove that angles opposite to equal sides of an isosceles triangle are equal.

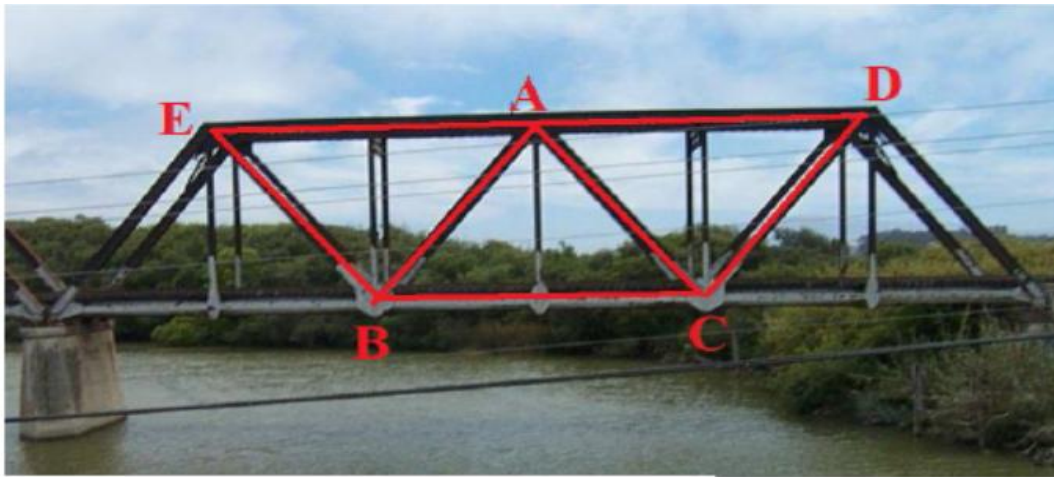
Q20. AD is an altitude in isosceles triangle ABC in which  $AB = AC$ . Show that (i) AD bisects BC (ii) AD bisects  $\angle A$ .

Q21. In the figure below, two sides AB and BC and the median AM of one triangle ABC are equal to sides PQ and QR and the median PN of  $\triangle PQR$ . Show that  $\triangle ABC \cong \triangle PQR$ .

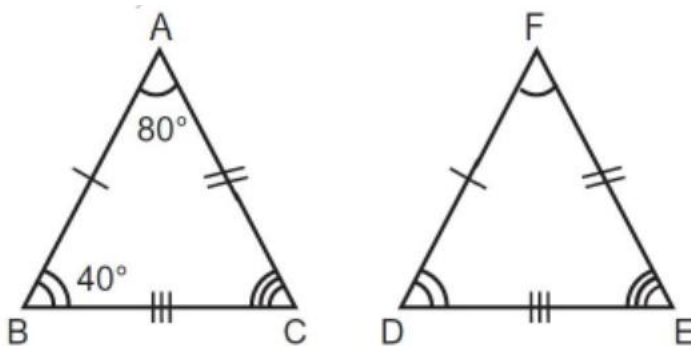


## 22. CASE STUDY QUESTION

Truss bridges are formed with a structure of connected elements that form triangular structures to make up the bridge. Trusses are the triangles that connect to the top and bottom cord and two end posts. You can see that there are some triangular shapes shown in the picture given alongside and these are represented as  $\triangle ABC$ ,  $\triangle CAD$ , and  $\triangle BEA$



- (a) If  $AB = CD$  and  $AD = CB$ , then  $\triangle ABC \cong \triangle CDA$  by -----
- b) If  $AB = 7.5$  m,  $AC = 4.5$  m and  $BC = 5$  m. Find the perimeter of  $\triangle ACD$ ,
- c) If  $\triangle ABC \cong \triangle FDE$ ,  $AB = 5$  cm,  $\angle B = 40^\circ$  and  $\angle A = 80^\circ$ . Then find the length of  $DF$  and  $\angle E$ .



**Q1.** The figure formed by joining the midpoints of the adjacent sides of a rectangle is a

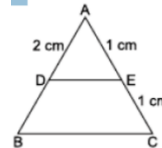
- a) rhombus                      b) square                      c) rectangle                      d) parallelogram

**Q2.** In a quadrilateral, three angles are in the ratio 3:3:1 and the fourth angle is  $80^\circ$ , then other angles are \_\_\_\_\_.

- a)  $120^\circ, 120^\circ, 40^\circ$     b)  $100^\circ, 100^\circ, 80^\circ$     c)  $110^\circ, 110^\circ, 60^\circ$     d)  $90^\circ, 90^\circ, 30^\circ$

**Q3.** In the given figure, find BD, if  $DE \parallel BC$ .

- a) 2 cm    b) 1 cm    c) 3 cm    d) none of these



**Q4.** If in a quadrilateral ABCD,  $\angle A = 90^\circ$  and  $AB = BC = CD = DA$ , then ABCD is a \_\_\_\_\_

- a) Parallelogram    b) Rectangle    c) Square    d) Rhombus

**Q5.** A quadrilateral whose diagonals are equal and bisect each other at right angles is a \_\_\_\_\_

- a) Rhombus    b) Square    c) Trapezium    d) Rectangle

**Q6.** The quadrilateral formed by joining the midpoints of the sides of a rhombus taken in order is a \_\_\_\_\_

- a) Rectangle    b) Square    c) Trapezium    d) Kite

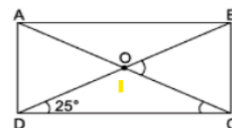
**Q7.** In a  $\triangle ABC$ , P, Q, R, are the midpoints of the sides BC, CA and AB respectively. If  $AC = 21\text{cm}$ ,  $BC = 29\text{cm}$ ,  $AB = 30\text{cm}$ . Find the perimeter of quadrilateral ARPQ. In a rhombus, PQRS if  $PQ = PR$ , then  $\angle PQR$  is \_\_\_\_\_.

- a)  $20^\circ$     b)  $21^\circ$     c)  $51^\circ$     d)  $45^\circ$

**Q8.** In a parallelogram, ABCD if  $\angle A = 75^\circ$ , then  $\angle C$  is \_\_\_\_\_.

- a)  $15^\circ$     b)  $105^\circ$     c)  $75^\circ$     d) None of these

**Q9.** A diagonal of a rectangle is inclined to one side of the rectangle at  $25^\circ$ . The acute angle between the diagonals is \_\_\_\_\_



- a)  $50^\circ$     b)  $55^\circ$     c)  $85^\circ$     d)  $60^\circ$

**Q10.** If in a quadrilateral only one pair of opposite sides are parallel ,then the quadrilateral is ---

- a) Trapezium                      b) Parallelogram                      c) Kite                      d) Rhombus

**Q11.** A quadrilateral, whose diagonals bisect at right angles,is called -----

- a) Rhombus                      b) Parallelogram                      c) Trapezium                      d) Kite

**Q12.** The bisectors of any two adjacent angles of a parallelogram intersect at \_\_\_\_

- a)  $40^\circ$                       b)  $45^\circ$                       c)  $50^\circ$                       d)  $90^\circ$

**Q13.** A diagonal of a parallelogram divides it into two congruent ---

- a) Square                      b)Parallelogram                      c) Triangles                      d)Rectangles

**Q14.** In a parallelogram ABCD ,If  $\angle C = 65^\circ$  then  $(\angle B + \angle D)$  .

- a)  $180^\circ$                       b)  $115^\circ$                       c)  $155^\circ$                       d)  $230^\circ$

**Q15.** If bisectors of  $\angle A$  of a quadrilateral ABCD intersect each other at P,  $\angle B$  and  $\angle C$  at Q,  $\angle C$ ,

and  $\angle D$  at R,  $\angle D$ , and  $\angle A$  at S, then PQRS is a-----

- (a) Rectangle b)Rhombus c) parallelogram d)Quadrilateral whose opposite angles are supplementary.

**In each question 16 TO 19, a statement of Assertion (A)is followed by a corresponding statement of Reason(R) .Choose the correct option.**

- (a) Both assertion (A) and reason ( R ) are true, and reason ( R ) is the correct explanation of assertion (A).  
(b) Both assertion (A) and reason ( R ) are true, and reason ( R ) is not the correct explanation of assertion (A).  
(c) Assertion (A) is true, but reason(R) is false. (d) Assertion (A)is false, but reason ( R )is true.

16. ASSERTION: Every square is a rectangle .REASON: Every rectangle is a square.

17. ASSERTION: In a rhombus **ABCD**,the diagonals **AC bisect  $\angle A$**  as well as  **$\angle C$** .

REASON : The diagonals of a rhombus bisect each other at right angles.

18. ASSERTION: ABCD is a quadrilateral in which P,Q,R, and S are the midpoints of AB,BC,CD, and AD respectively. Then **PQRS** is a parallelogram.

REASON : The line segment joining the mid points of any two sides of a triangle is parallel to the third side and equal to half of it.

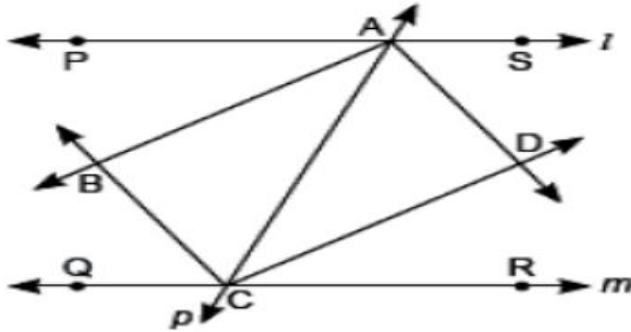
19. ASSERTION : If ABCD is a parallelogram, then  $AD = AB$  .

REASON : Opposite sides of a parallelogram are equal .

20. In a parallelogram ABCD, E, and F are the midpoints of sides AB and CD. Prove that the line segments AF and EC **trisection** the diagonal BD.

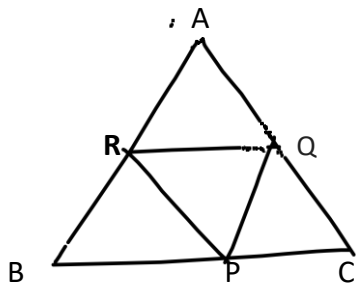
21. Show that the diagonals of a square are equal and bisect each other at right angles.

22. Show that the bisectors of angles of a parallelogram form a rectangle.
23. ABC is a triangle right angled at C. A line through the midpoint M of hypotenuse AB and parallel to BC intersects AC at D. Show that (i) D is the midpoint of AC. (ii)  $MD \perp AC$ . (iii)  $CM = \frac{1}{2}AB$ .
24. Two parallel lines  $l$  and  $m$  are intersected by a transversal  $p$ . Show that the quadrilateral formed by the bisectors of interior angles is a rectangle.



25. CASE STUDY QUESTION

There is a Diwali Celebration in the DPS school in Janakpuri, New Delhi. Girls are asked to prepare a triangular rangoli. They made a rangoli in the shape of triangle ABC. The dimensions of  $\Delta ABC$  are  $AB = 26\text{cm}$ ,  $BC = 28\text{cm}$ , and  $25\text{cm}$ .



- In the figure R is midpoint of AB and  $RQ \parallel BC$ , then AQ is equal to--
  - BC
  - RB
  - QC
  - AD
- In figure R and Q are the midpoints of AB and AC. The length of RQ is equal to--
  - 14
  - 13
  - 12.5
  - 13.5
- If Garland is to be placed along the side of  $\Delta PQR$  which is formed by joining midpoint. What is the length of the garland?

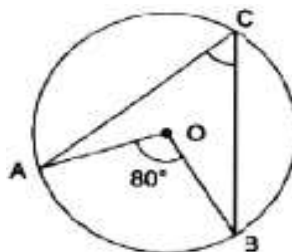
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MATHEMATICS WORKSHEET (2024 – 2025)

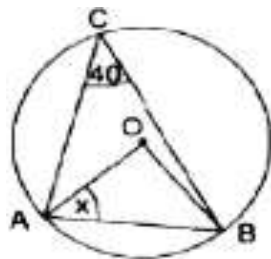
GRADE: IX

CIRCLES

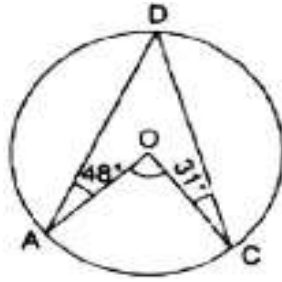
- The longest chord of the circle is:  
a. Radius    b. Arc    c. Diameter    d. Segment
- Equal \_\_\_\_\_ of congruent circles subtend equal angles at the centers.  
a. Radii    b. Sectors    c. Chords    d. Segment
- If there are two separate circles drawn apart from each other, then the maximum number of common points they have:  
a. 0    b. 1    c. 2    d. 3
- The angle subtended in a semi-circle is:  
a.  $90^\circ$     b.  $40^\circ$     c.  $180^\circ$     d.  $60^\circ$
- In the figure, if O is the centre of a circle, then the measure of  $\angle ACB$  is:



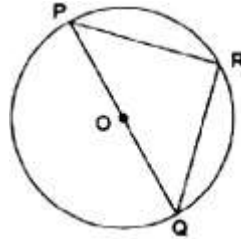
- a.  $80^\circ$     b.  $100^\circ$     c.  $40^\circ$     d.  $60^\circ$
- 6.. In the figure, if O is the centre of the circle and  $\angle ACB = 40^\circ$  then the measure of x is:  
a.  $40^\circ$     b.  $80^\circ$     c.  $50^\circ$     d.  $110^\circ$



7. In the figure, O is the centre of the circle and  $\angle OAD = 48^\circ$  ,  $\angle OCD = 31^\circ$  What is the measure of  $\angle AOC$ ?  
a.  $120^\circ$     b.  $136^\circ$     c.  $128^\circ$     d.  $158^\circ$



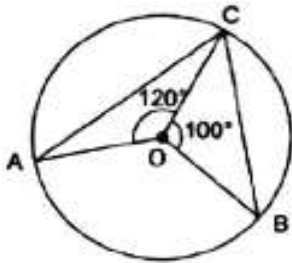
8. In the figure, O is the centre of the circle and  $PR = QR$ . What is the measure of  $\angle PQR$ ?



a.  $60^\circ$     b.  $110^\circ$     c.  $75^\circ$     d.  $45^\circ$

9. In the figure, O is the centre of the circle. What is the measure of  $\angle ACB$ ?

a.  $45^\circ$     b.  $60^\circ$     c.  $70^\circ$     d.  $90^\circ$



10. Two circles can have a maximum of \_\_\_\_\_ common points.

a. 0    b. 1    c. 2    d. infinitely many

11. . How many circles can pass through three non-collinear points?

a. 0    b. 1    c. 2    d. 4

12. Angles subtended in the same segment are -----

a. Equal    b. Unequal    c. Complementary    d. Supplementary

13. The sum of either pair of opposite angles of a cyclic quadrilateral is -----.

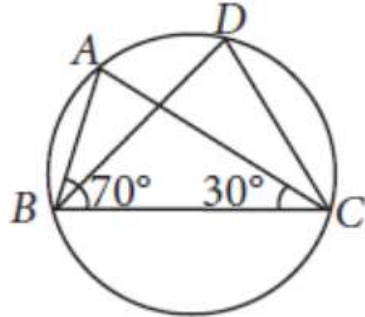
a.  $90^\circ$     b.  $60^\circ$     c.  $70^\circ$     d.  $180^\circ$

14. A chord of a circle is equal to the radius of the circle. The angle subtended by the chord on the longer segment of the circle is equal to -----.



- a.  $45^\circ$       b.  $30^\circ$       c.  $70^\circ$       d.  $150^\circ$

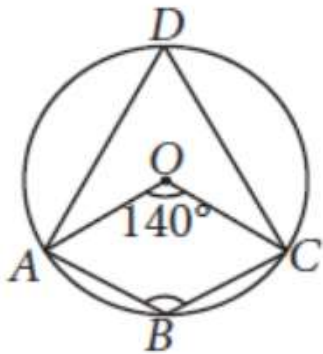
15. **STATEMENT A(ASSERTION):**Assertion : In the given figure,  $\angle ABC = 70^\circ$  and  $\angle ACB = 30^\circ$ . Then,  $\angle BDC = 80^\circ$ .



**STATEMENT R(REASON):** Angles in the same segment of a circle are equal.

- a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A)  
 b) Both assertion (A) and reason (R) are true and reason (R) is not the correct explanation of assertion  
 c) Assertion (A) is true but reason (R) is false.  
 d) Assertion (A) is false but reason (R) is true.

16. **STATEMENT A(ASSERTION):** In the given figure, O is the centre of circle. If  $\angle AOC = 140^\circ$ , then  $\angle ABC = 70^\circ$ .

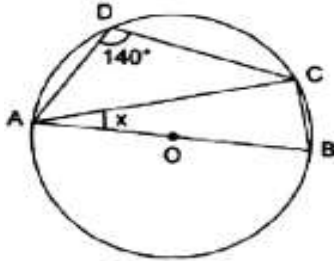


**STATEMENT R(REASON):** In a cyclic quadrilateral, opposite angles are supplementary

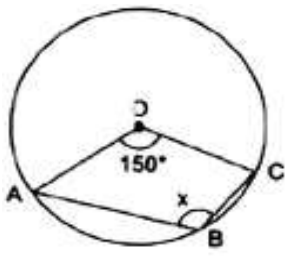
- a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A)  
 b) Both assertion (A) and reason (R) are true and reason (R) is not the correct explanation of assertion

- c) Assertion (A) is true but reason (R) is false.
- d) Assertion (A) is false but reason (R) is true.

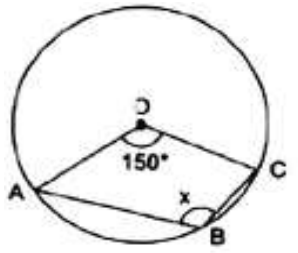
17. In the figure, O is the centre of the circle. . If  $\angle ADC = 140^\circ$ , What is the value of  $x$ ?



18. In the figure, O is the centre of the circle. If  $\angle AOC = 150^\circ$ , then what is the value of  $x$ ?



19. In the figure given, if  $\angle A$  and  $\angle C$  are in the ratio 3 : 2, then we have:



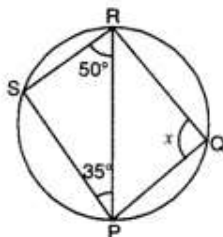
$\angle A = \dots\dots\dots$  and  $\angle B = \dots\dots\dots$

20. A chord is at a distance of 5cm from the centre of a circle of radius 13cm. Find the length of the chord.

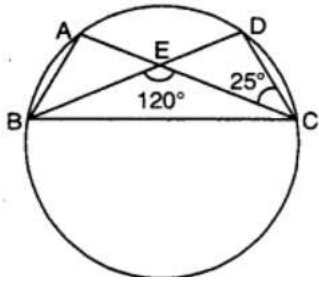
21. The radius of a circle is 13cm and the length of one of its chords is 10cm. Find the distance of the chord from the centre of the circle.

22.

In the figure, PQRS is a cyclic quadrilateral. Find the value of  $x$ .

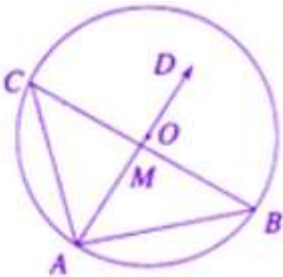


23. In the figure given, find angle BAC

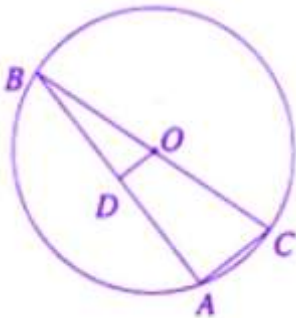


24. Two concentric circles are with centre O. A line intersects with the circles at points A,B,C and D. OM is drawn perpendicular to the line. If AD = 12cm and BC = 8 cm then find AB.

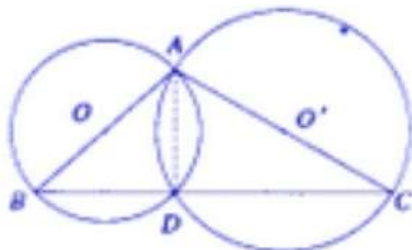
25. In the figure given, AB and AC are two equal chords of a circle. Prove that bisector of angle BAC passes through the centre of the circle.



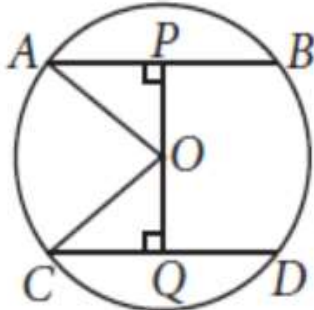
26. In the figure given, O is the centre of the circle and BC is the diameter. OD is perpendicular to chord AB. Prove that  $AC = 2OD$  and  $AC \parallel OD$



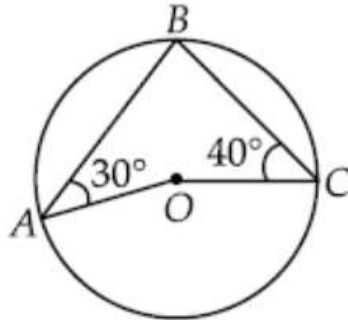
27. Two circles are drawn using sides AB and AC of triangle ABC, as diameters. Show that the circles intersect with each other at point D. ( Figure given )



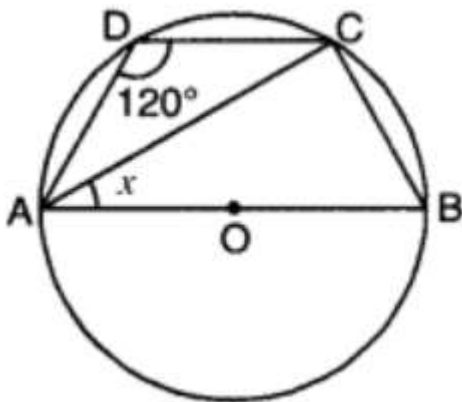
28. In the given figure, O is the centre of the circle of radius 5 cm. If  $OP \perp AB$ ,  $OQ \perp CD$ ,  $AB \parallel CD$ ,  $AB = 6$  cm and  $CD = 8$  cm, then  $PQ = ?$



29. In the given figure,  $\angle BAO = 30^\circ$  and  $\angle BCO = 40^\circ$ . Then the measure of  $\angle AOC = 60^\circ$ .



30. In the figure given below, O is the centre of the circle.  $\angle ADC = 120^\circ$ . Find the value of  $x$



# INTERNATIONAL INDIAN SCHOOL DAMMAM

## MATHS WORKSHEET 2024 – 2025

### CHAPTER-11 SURFACE AREA AND VOLUME

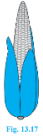
#### CLASS – IX

1. Area of base of solid hemisphere is  $64\pi\text{ cm}^2$ . Then the diameter is  
a) 8cm   b) 6cm   c) 16cm   d) None of these
2. If the volume of and surface area of sphere is numerically equal, then its radius is  
a) 2 units   b) 4 units   c) 3 units   d) 5 units
3. A hemispherical vessel is 21 cm is completely filled with milk, How many litres of milk is contained in the vessel? (use  $\pi = 22/7$ )  
a) 19.404 l   b) 1.9404 l   c) 0.19404 l   d) 2.1867 l
4. Total surface area of right circular cone of base diameter  $2r$  and slant height is  $l$  is equal to  
a)  $\pi r^2 + \pi r l$    b)  $\pi r l^2 + \pi r$    c)  $2\pi r^2$    d)  $2\pi r l$
5. Slant height of a cone is 34 cm and base diameter is 32 cm, then height of the cone is  
(a) 33 cm   (b) 25 cm   (c) 30 cm   (d) 27 cm
6. Assertion (A): A solid sphere is a three dimensional figure.

Reason (R): Sphere is made up of all points in the space which lies at a constant distance from a fixed point

7. If the total surface area of a solid hemisphere is  $462\text{ cm}^2$ , find its volume. [Take  $\pi = 22/7$ ]
8. Find the height of cone, if its slant height is 34 cm and base diameter is 32 cm
9. The diameters of two cones are equal. If their slant heights are in the ratio 7:4, find the ratio of their curved surface area.

10. A corn cob (see figure), shaped somewhat like a cone, has the radius of its broadest end as 2.1 cm and length (height) as 20 cm. If each  $1 \text{ cm}^2$  of the surface of the cob carries an average of four grains, find how many grains you would find on the entire cob



11. A basket ball is just packed in a cube of side 20 cm, then the surface area of the basket ball is

12. The surface areas of two hemispheres are in the ratio 25:49. The ratio of their radii is

13. If the surface area of a sphere is  $784\pi \text{ cm}^2$ , find its radius

14. If the total surface area of a sphere is  $98.56 \text{ cm}^2$ , find the radius of the sphere.

15. The outer curved surface areas of a hemisphere and a sphere are in the ratio 2 : 9. Find the ratio of their radii

16. If the radius and height of a right circular cone are in the ratio 1 : 4, then its volume in  $\text{cm}^3$  is 4, find its radius

17. The volumes of two hemispheres are in the ratio 27: 125. Find the ratio of their radii.

18. The volumes of two spheres are in the ratio 64:27. Find their radii, if the sum of their radii is 21 cm.

19. Find the volume of a sphere whose surface area is  $154 \text{ cm}^2$ .

20. A toy is in the form of a cone of radius 3.5cm mounted on a hemisphere of same radius. The total height of the toy is 15.5 cm. Find the total surface area of the toy.

### Case study-based questions

21. On a construction site, a deep pit is barricaded from the rim using 100 cones made of recycled plastic. Each cone has a radius of 24cm and height is 24cm.

1. Find the slant height of a cone.

2. The formula that is used to calculate the curved surface area of a cone is

3. What is the cost of painting all cones, if the outer side of each of cone is to be painted red and cost of painting is Rs. 20 per  $\text{cm}^2$ . [ use  $\pi = 22/7$  ]

OR

3. If curved surface area of a cone is  $308\text{cm}^2$  and slant height is 14cm, find the total surface area of the cone? [use  $\pi = 22/7$ ]

22. Four friends Ankur, Syed, Rahul and David went out for a picnic in a hill station. Due to peak season, they didn't get a hotel in the city. The weather was good, so they decided to make a conical tent in a park. They were carrying  $551\text{m}^2$  canvas with them. They made a tent of base radius 7m. All the stitching margins and wastage incurred while cutting amounts approximately  $1\text{m}^2$ .

a) Find CSA of the tent.

b) Find the slant height of the conical tent.

c) Find the volume of the tent

OR

c) Find the cost of the canvas required to make the tent, if the cost of  $1\text{m}^2$  is Rs.10.

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# INTERNATIONAL INDIAN SCHOOL DAMMAM

## MATHS WORKSHEET 2024 – 2025

### CHAPTER-10 HERON'S FORMULA

#### CLASS - IX

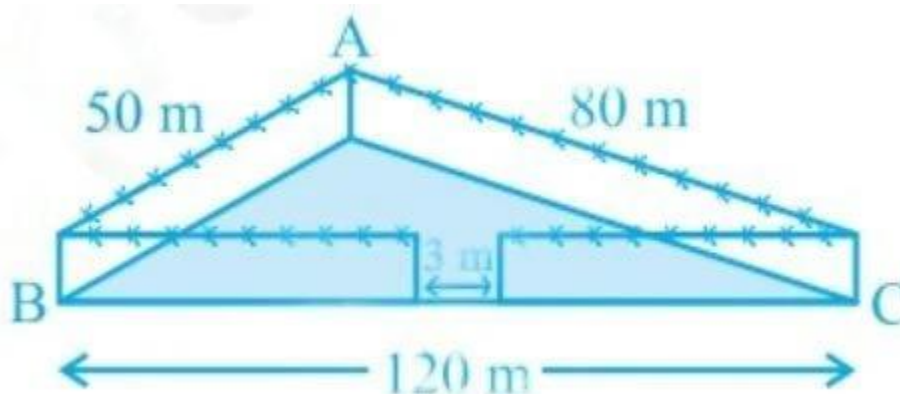
- The perimeter of an equilateral triangle is 60m. Then the area is  
a)  $10\sqrt{3} \text{ m}^2$                   b)  $15\sqrt{3} \text{ m}^2$                   c)  $20\sqrt{3} \text{ m}^2$                   d)  $100\sqrt{3} \text{ m}^2$
- The length of each side of an equilateral triangle having area of  $16\sqrt{3} \text{ cm}^2$  is  
a) 10 cm                          b) 4 cm                          c) 6 cm                          d) 8 cm
- Triangle with three sides a,b,c has semi perimeter  $S=-----$  and Area is -----  
a)  $3a, \sqrt{3}/4 a^2$     b)  $a+b+c, \frac{1}{2} bh$   
c)  $\frac{a+b+c}{2}, \sqrt{s(s-a)(s-b)(s-c)}$     d)  $3a, \text{ base } \times \text{ height}$
- The area of an isosceles triangle having base 4cm and the lengths of one of the equal sides 5 cm is ?  
a)  $4\sqrt{21} \text{ cm}^2$                   b)  $84 \text{ cm}^2$                   c)  $42 \text{ cm}^2$                   d)  $2\sqrt{21} \text{ cm}^2$
- The perimeter of a triangle is 45 cm. If its sides are in the ratio 1 : 2 : 2, then its smallest side is  
a) 19 cm                          b) 9 cm                          c) 18 cm                          d) 20 cm
- The two sides of a triangle is 8 cm and 15 cm and perimeter is 40 cm. Find its area.?
- Find the length of each side of an equilateral triangle having area  $9\sqrt{3} \text{ cm}^2$  ?
- Find the area of a right triangle in which sides containing the right angle measures 20 cm and 15 cm ?
- One side of an equilateral triangle is 4 cm. Find its area ?
- Using Heron's formula, find the area of an equilateral triangle, the length of one side is 'a' ?
- If the area of equilateral triangle is  $16\sqrt{3} \text{ cm}^2$ . Find its height ?
- If the area of equilateral triangle is  $64\sqrt{3} \text{ cm}^2$ . Find its perimeter ?
- The sides of a triangle are 12 cm, 13 cm and 15 cm. Find its area ?



14. The perimeter of isosceles triangle is 30 cm and one of its equal side is 12 cm. Find its area ?
15. Find the area of an isosceles triangle, whose equal sides are of length 15 cm and the third side is 12 cm ?
16. Sides of triangle are in the ratio of 13 : 14 : 15 and its perimeter is 84 cm. Find the area of the triangle ?
17. The perimeter of a triangular park is 180 cm and its sides are in the ratio of 5:6:7 Find the area of the park?
18. The base of triangular field is 880m and its height is 550m. Find the area of the field. Also calculate the charges for supplying water to the field at the rate of Rs. 25 per square meter ?
19. The perimeter of an isosceles triangle is 32cm. The ratio of the equal side and its base is 3:2. Find the area of the triangle ?
20. A floral design on a floor is made up of 18 tiles which are triangular, the sides of triangle being 14cm, 13cm & 15cm. Find the cost of polishing the tiles at the rate of 50 paisa per  $\text{cm}^2$  ?
21. The sides of triangular field are 41m, 40m & 9m. Find the number of rose beds that can be prepared in the field, if each rose bed on an average needs  $900\text{cm}^2$  space?

**Case study based questions**

22. A triangular park ABC has sides 120 m, 80 m and 50 m. A gardener Dhanika has to put a fence all around it and also plant grass. A small artificial pond of radius 3.5 meter in the shape of hemisphere is constructed in the park. There is a road for cycling as well in the park.



Read the passage and answer the following questions.

(i) What is the length of wire required to the park leaving in the front for gate.

(ii) What will be the inner curved surface arse of the poud?

(iii-a) Find the quantity of water that can be contained in the pond.

OR

(iii-b) Find the total area of the park.

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