STANDARD 8TH: CHAPTER 4

ALTITUDE AND MEDIAN

Q1. Fill the blanks

1. The orthocenter of a triangle is the point of intersection of its _____.
2. In an acute triangle, the orthocenter lies _____ the triangle.
3. In a _____ triangle, the orthocenter lies at the vertex of the triangle.
4. The orthocenter of an obtuse triangle lies _____ the triangle.
5. The orthocenter is equidistant from the _____ of the equilateral triangle.
6. The line connecting a vertex to the orthocenter is called the _____.
7. The orthocenter of an equilateral triangle's altitude divides it's in a ratio _____.
8. The length from the vertex of the obtuse angle of a triangle to its orthocenter is _____ than the other two vertices to its orthocenter.
9. In a triangle, the orthocenter, centroid, and circumcenter are _____ if the triangle is equilateral.

Q2. Solve the followings:

1. Find the area of the right-angle triangle if the hypotenuse is 17 m and the altitude from vertex right angle to hypotenuse is $\frac{120}{17}$ m.
2. Find the area of the equilateral triangle with half base length is 3 unit and its median length is $3\sqrt{3}$ unit.

3. In a triangle ABC, AD is a median to the base BC such that the area ABD is 15 m^2. Find the total area of the triangle ABC.

4. In a triangle ABC, AD and AE is a median and altitude to the base BC respectively such that the area ABD is 15 m^2. Find AE in meter if BC = 6.

5. In a triangle ABC, the median and altitude from the vertex A to the base BC are same and intersect BC at D. if AB = 2 BD = 8 m, then find AD.

6. In a triangle ABC, the median AD to the base BC is perpendicular. If AD = 10 and BD = 5 m, then find the parameters of the triangle ABC.

7. Construct all the altitudes in a triangle with side lengths 17, 17 and 9 units.
8. Construct all the medians in a triangle with side lengths 17, 17 and 9 units.
9. The Indian government intends to establish a government public zone accessible to Mumbai, Delhi, and Chennai. Given the distances between Mumbai and Delhi (1450 km), Mumbai and Chennai (1320 km), and Delhi and Chennai (2200 km), the government aims to determine the distance from Mumbai to the government public zone, ensuring convenient access for all three cities. Construct such diagram representation.

10. A trust operates three hospitals, A, B, and C, within a densely populated city. Due to facility shortages at these hospitals, the trust intends to establish a new hospital, G, within the city. This strategic placement of hospitals, A, B, C, and G, aims to facilitate seamless patient transfers between them. Given the distances between A and B (30 km), B and C (40 km), and A and C (50 km), the trust seeks to determine the distance from A to G in kilometers.