# Sadiq Public School

Do the right, fear no man

**Subject: Mathematics** **Class: S2** **Day: Saturday** **Date: 16-11-2024**

**Topic: Line bisectors and angle bisectors.**

**Lesson [Chap.12] This lesson is about the theorems on line bisector and angle bisector.**

**A) Inquiry:**

In this unit we will prove theorems and their converses, if any, about right bisector of a line segment and bisector of an angle. But before that can you answer these.

- What is line bisector?
- What is angle of bisector?
- What are the similarities between an angle bisector and a segment bisector?
- Is a perpendicular bisector always an angle bisector?
- Is a bisector a midpoint?

**B) Information:**

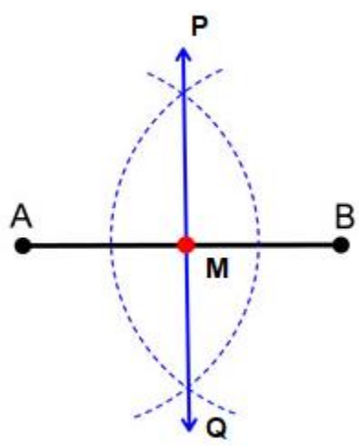
**Bisector (Definition)**

The bisector is a line that divides a line or an angle into two equivalent parts. The bisector of a segment always contains the midpoint of the segment. There are two types of bisectors based on what geometrical shape it bisects.

- Line Segment Bisector (Perpendicular Bisector Theorem)
- Angle Bisector (Triangle Bisector Theorem)

**Line Segment Bisector**

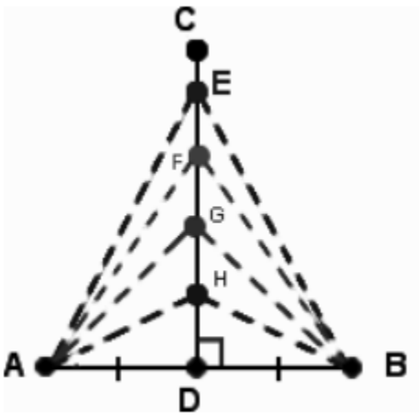
A line segment bisector divides the line segment into 2 equal parts. It passes through the midpoint of the line segment. In the below figure line PQ is the bisector of AB.




**What is Perpendicular Bisector?**

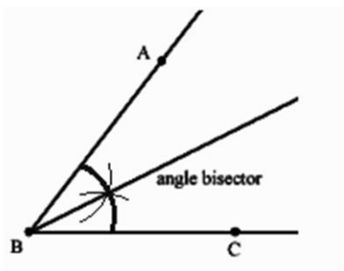
A perpendicular bisector is a line segment or a ray or a line which intersects a given line segment at a $90^{o}$, and also it passes through the midpoint of the line segment. Two lines are said to be perpendicular to each other when they intersect in such a way that they form 90 degrees with each other. A bisector divides a line into two equal halves. Thus, when we talk about the perpendicular bisector of a line segment AB, it implies:

- It divides AB into two equal halves or bisects it.
- It makes right angles with (or is perpendicular to) AB.
- Every point in the perpendicular bisector is equidistant from point A and B.




**Angle Bisector**

An angle bisector divides an angle into equal angles. If the angle is $p^o$, the two angles made will be $(p/2)^{o.}$ This angle bisector passes through the vertex of an angle, as shown in the figure.




**Example of Angle Bisector:**

Consider an Angle $\angle ABC = 90^0$. An angle bisector will cut it into two equal angles of $45^0$ each.

**C: Synthesising/ Absorbing the information**

- Write your own summary on the information you read in your text book from page # 210 to 215
- For more understanding search the following link. All types of examples are there.
  - **https://www.youtube.com/watch?v=DxfO7AOUj-E**

**D: Questions for practice**

**Review Ex: 12**

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