

5.2 - Triangle Bisectors Discovery

Part I - Perpendicular Bisector Discovery

1. Construct segment AB
2. Construct the perpendicular bisector to AB
3. Create point C on the perpendicular bisector.
4. Construct segment AC and segment BC
5. Measure the lengths of \overline{AC} and \overline{BC} .

$$AC = \underline{\hspace{2cm}} \qquad BC = \underline{\hspace{2cm}}$$

6. Slide point C along the perpendicular bisector and change the size of \overline{AB} . Observe the change in the lengths of \overline{AC} and \overline{BC} .

Make a conjecture...

A point on the perpendicular bisector of a segment will be _____

Part 2 - Angle Bisector Discovery

1. Construct $\angle BAC$.
2. Construct the Angle Bisector of $\angle BAC$.
3. Construct point D on the angle bisector.
4. Construct a line that passes through point D and is perpendicular to \overline{AB} .
5. Using the "Intersect" Tool, find the intersection of the line and \overline{AB} , point E. Measure $\angle DEA$.
6. Make segment \overline{DE} . This will overlap the line. Hide unnecessary lines.
7. Repeat steps #4-6 to construct a segment \overline{DF} that passes through point D and is perpendicular to \overline{AC} .
8. Measure the lengths of \overline{DE} and \overline{DF} .

$$DE = \underline{\hspace{2cm}} \qquad DF = \underline{\hspace{2cm}}$$

9. Slide point D along the angle bisector and change the size of $\angle BAC$ by moving points A or C. Observe the change in the lengths of \overline{DE} and \overline{DF} .

A point on the bisector of an angle will be _____

Need Help??

To construct an angle, 1) using the ray tool, click the vertex and then another point, and 2) repeat for the other side of the angle.

To construct a perpendicular line through a point, 1) select the "Perpendicular Line" tool 2) click on the point you want to pass through and 3) click on the line you want to be perpendicular to.