## Mixed Review Exercises

**Complete.**

1. A median of a triangle is a segment from a vertex to the __?__ of the opposite side.

2. A quadrilateral with both pairs of opposite angles congruent is a __?__.

3. A parallelogram with congruent diagonals is a __?__.

4. A parallelogram with perpendicular diagonals is a __?__.

5. If a side of a square has length 5 cm, then a diagonal of the square has length __?__ cm.

6. The measure of each interior angle of a regular pentagon is __?__.

# 10-2 *Perpendiculars and Parallels*

The next three constructions are based on a theorem and postulate from earlier chapters. The theorem and postulate are repeated here for your use.

(1) If a point is equidistant from the endpoints of a segment, then the point lies on the perpendicular bisector of the segment.

(2) Through any two points there is exactly one line.

## Construction 4

**Given a segment, construct the perpendicular bisector of the segment.**

Given: $\overline{AB}$

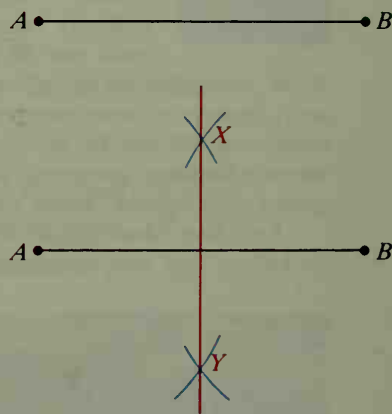Construct: The perpendicular bisector of $\overline{AB}$



Procedure:

1. Using any radius greater than $\frac{1}{2}AB$, draw four arcs of equal radii, two with center $A$ and two with center $B$. Label the points of intersections of these arcs $X$ and $Y$.

2. Draw $\overleftrightarrow{XY}$.

$\overleftrightarrow{XY}$ is the perpendicular bisector of $\overline{AB}$.

Justification: Points $X$ and $Y$ are equidistant from $A$ and $B$. Thus $\overleftrightarrow{XY}$ is the perpendicular bisector of $\overline{AB}$.

Note that you can use Construction 4 to find the midpoint of a segment.