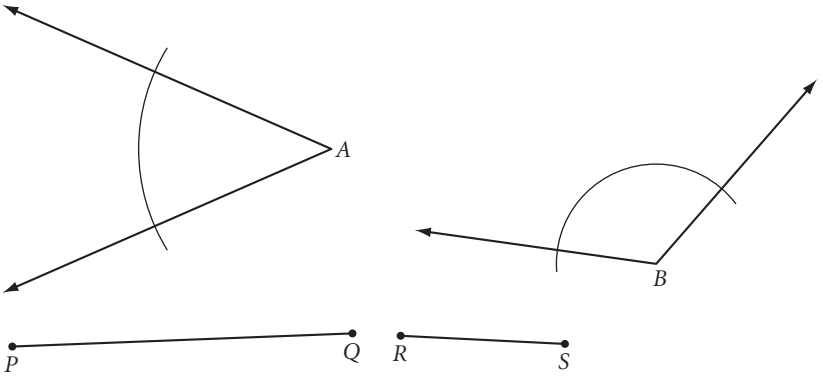
Lesson 3.1 • Duplicating Segments and Angles

Name _____ **Period** _____ **Date** _____

In Exercises 1–3, use the segments and angles below. Complete the constructions on a separate piece of paper.

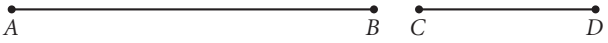


1. Using only a compass and straightedge, duplicate each segment and angle. There is an arc in each angle to help you.

2. Construct a line segment with length $3PQ - 2RS$.

3. Duplicate the two angles so that the angles have the same vertex and share a common side, and the nonshared side of one angle falls inside the other angle. Then use a protractor to measure the three angles you created. Write an equation relating their measures.

4. Use a compass and straightedge to construct an isosceles triangle with two sides congruent to $\overline{AB}$ and base congruent to $\overline{CD}$.



5. Repeat Exercise 4 with patty paper and a straightedge.

6. Construct an equilateral triangle with sides congruent to $\overline{CD}$.

Lesson 3.2 • Constructing Perpendicular Bisectors

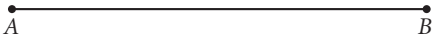
Name _____ **Period** _____ **Date** _____

For Exercises 1–6, construct the figures on a separate sheet of paper using only a compass and a straightedge.

1. Draw a segment and construct its perpendicular bisector.

2. Construct two congruent segments that are the perpendicular bisectors of each other. Form a quadrilateral by connecting the four endpoints. What type of quadrilateral does this seem to be?

3. Duplicate $\overline{AB}$. Then construct a segment with length $\frac{5}{4}AB$.



4. Draw a segment; label it $\overline{CM}$. $\overline{CM}$ is a median of $\triangle ABC$. Construct $\triangle ABC$. Is $\triangle ABC$ unique? If not, construct a different triangle, $\triangle A'B'C$, also having $\overline{CM}$ as a median.

5. Draw a segment; label it $\overline{PQ}$. $\overline{PQ}$ is a midsegment of $\triangle ABC$. Construct $\triangle ABC$. Is $\triangle ABC$ unique? If not, construct a different triangle, $\triangle A'B'C'$, also having $\overline{PQ}$ as a midsegment.

6. Construct a right triangle. Label it $\triangle ABC$ with right angle B. Construct median $\overline{BD}$. Compare BD, AD, and CD.

7. Complete each statement as fully as possible.

a. L is equidistant from _____.

b. M is equidistant from _____.

c. N is equidistant from _____.

d. O is equidistant from _____.