



Investigation 1 Duplicating a Segment

You will need

- a compass
- a straightedge
- a ruler
- patty paper



Stage 1



Stage 2



Stage 3

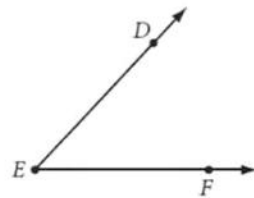
- Step 1 The complete construction for copying a segment, \overline{AB} , is shown above. Describe each stage of the process.
- Step 2 Use a ruler to measure \overline{AB} and \overline{CD} . How do the two segments compare?
- Step 3 Describe how to duplicate a segment using patty paper instead of a compass.



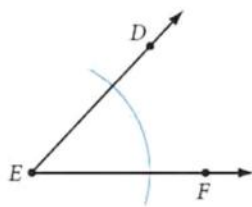
Investigation 2 Duplicating an Angle

You will need

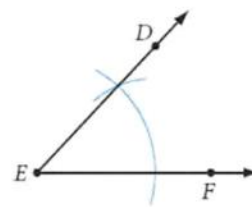
- a compass
- a straightedge



- Step 1 The first two stages for copying $\angle DEF$ are shown below. Describe each stage of the process.



Stage 1



Stage 2

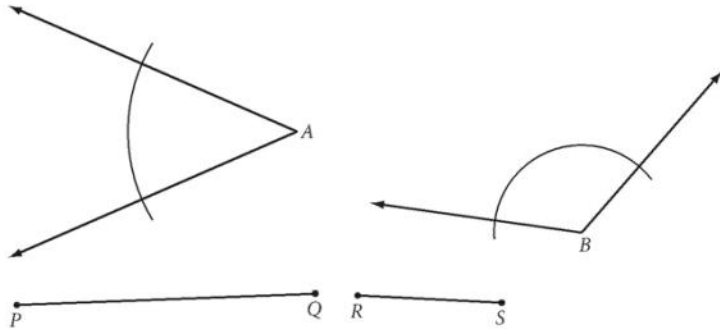


- Step 2 What will be the final stage of the construction?
- Step 3 Use a protractor to measure $\angle DEF$ and $\angle G$. What can you state about these angles?
- Step 4 Describe how to duplicate an angle using patty paper instead of a compass.

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.



- Using only a compass and straightedge, duplicate each segment and angle. There is an arc in each angle to help you.
- Construct a line segment with length $3PQ - 2RS$.
- 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.
- Use a compass and straightedge to construct an isosceles triangle with two sides congruent to \overline{AB} and base congruent to \overline{CD} .



- Repeat Exercise 4 with patty paper and a straightedge.
- Construct an equilateral triangle with sides congruent to \overline{CD} .

