Name Date

Enrichment and Extension

7.1

Compass Straightedge Construction

In addition to modern technology, a geometer’s most important tools are a compass and a straightedge (ruler without marks). These instruments can
be used for geometric drawings called constructions.

Bisecting the Angle

Bisecting the angle is the process of cutting a given angle in half so that both
halves are equal. This can be done using only a compass and straightedge.



 1. Classify angle *A*.

 2. Open the compass. Place the point of the compass at *A* and draw an arc
(a small curved line that is part of a circle) that intersects both sides of
the angle. Label the points where the curved line intersects the angle as
*B* and *C*.

 3. Place the point of the compass on *B*. Draw an arc that is contained within the angle. Without changing the width of the compass, place the point
of the compass on *C* and draw an arc that intersects the one just drawn.

 4. Label the intersection point of the two arcs *G*. Use a straightedge to
connect points *A* and *G*. The line segment *AG* bisects angle *BAC*.

 5. Use a protractor to measure angle *BAC*. Divide this measure by two to determine what each smaller angle should measure. Then, use your protractor and measure the smaller angles. How do the numbers compare?