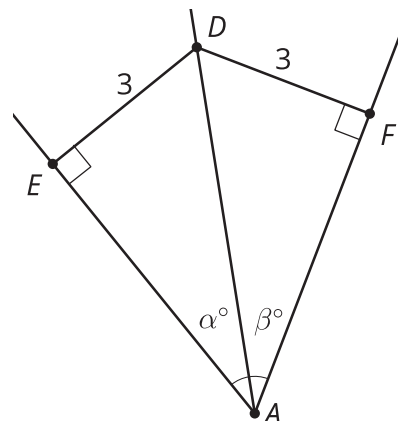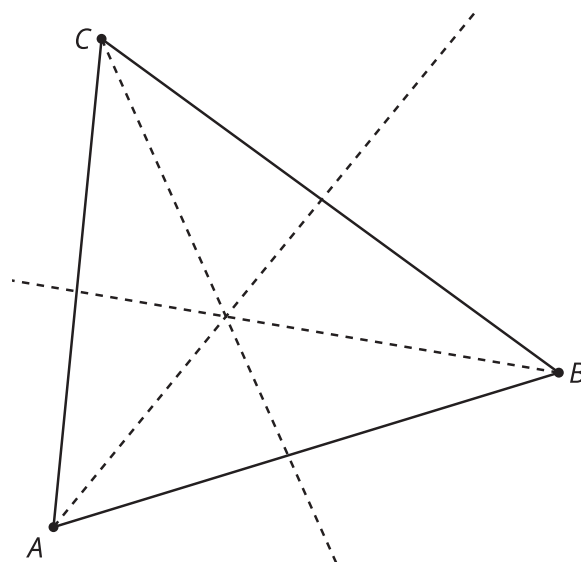## Lesson 6 Practice Problems
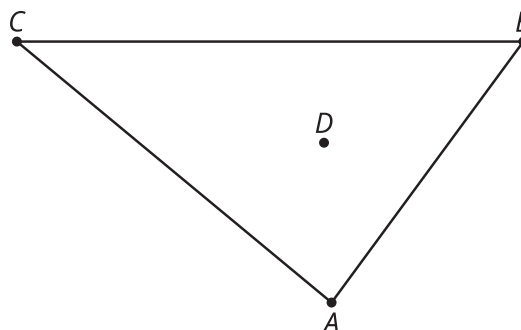
1. How do the values of α and β compare? Explain your reasoning.

2. Triangle ABC is shown together with its angle bisectors. Draw a point D that is equidistant from sides AC and BC, but which is closest to side AB.


3. In triangle ABC, point D is the incenter. Sketch segments to represent the distance from point D to the sides of the triangle. How must these distances compare?

4. Triangle ABC has circumcenter D.

   a. Sketch the 3 lines that intersect at the circumcenter.

   b. If the distance from point D to point A is 5 units, what is the distance from point D to point C? Explain or show your reasoning.
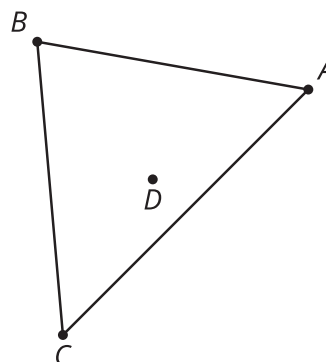
5. The angles of triangle ABC measure 50 degrees, 40 degrees, and 90 degrees. Will its circumcenter fall inside the triangle, on the triangle, or outside the triangle?

   A. inside the triangle

   B. on the triangle

   C. outside the triangle

6. Tyler and Kiran are discussing the parallelogram in the image. Tyler says the parallelogram cannot be cyclic. Kiran says the parallelogram can be cyclic if a circle is drawn carefully through the vertices.

20°
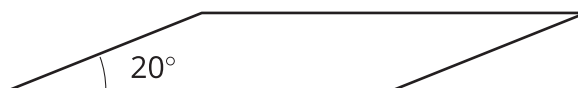
   Do you agree with either of them? Explain or show your reasoning.

7. Find the measures of the remaining angles of quadrilateral $WXYZ$.
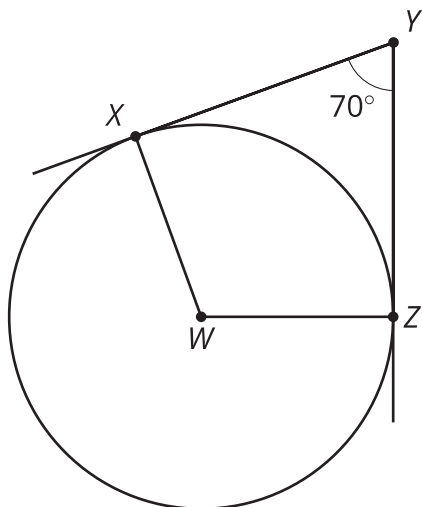
(From Unit 7, Lesson 3.)

8. Which expression describes a point that partitions a segment AB in a $1:5$ ratio?
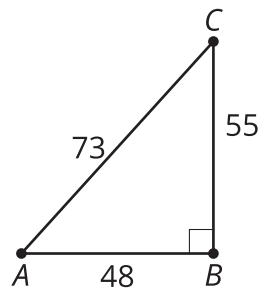
A. $\frac{1}{5}A + \frac{4}{5}B$

B. $\frac{1}{6}A + \frac{5}{6}B$

C. $\frac{4}{5}A + \frac{1}{5}B$

D. $\frac{5}{6}A + \frac{1}{6}B$

(From Unit 6, Lesson 15.)

9. Write 3 expressions that can be used to find angle C.

(From Unit 4, Lesson 9.)