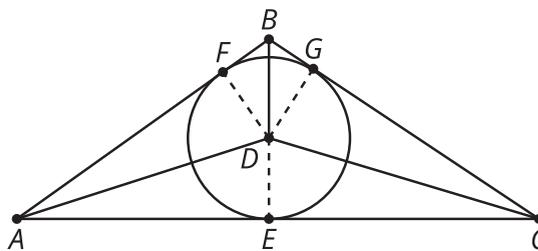


Lesson 7 Practice Problems

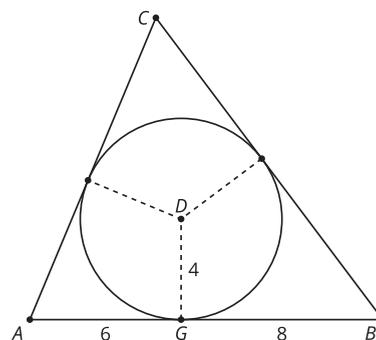
1. Triangle ABC is shown with its incenter at D . The inscribed circle's radius measures 2 units. The length of AB is 9 units. The length of BC is 10 units. The length of AC is 17 units.



a. What is the area of triangle ACD ?

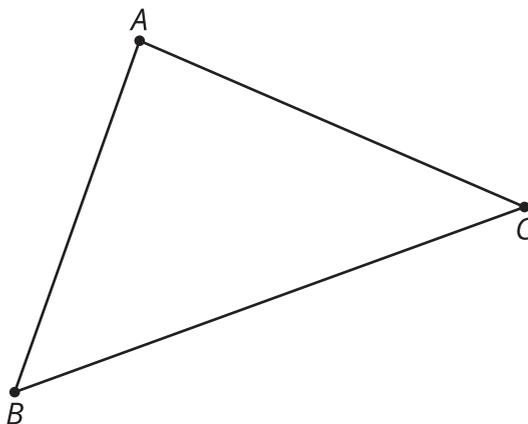
b. What is the area of triangle ABC ?

2. Triangle ABC is shown with an inscribed circle of radius 4 units centered at point D . The inscribed circle is tangent to side AB at the point G . The length of AG is 6 units and the length of BG is 8 units. What is the measure of angle A ?



- A. $\arctan\left(\frac{2}{3}\right)$
- B. $2 \arctan\left(\frac{2}{3}\right)$
- C. $\arcsin\left(\frac{2}{3}\right)$
- D. $2 \arccos\left(\frac{2}{3}\right)$

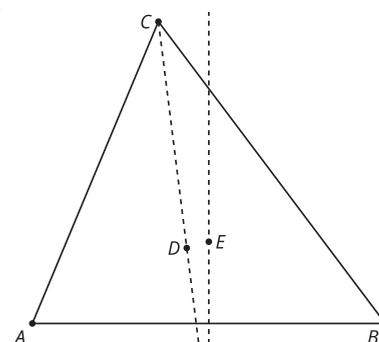
3. Construct the inscribed circle for the triangle.



4. Point D lies on the angle bisector of angle ACB . Point E lies on the perpendicular bisector of side AB .

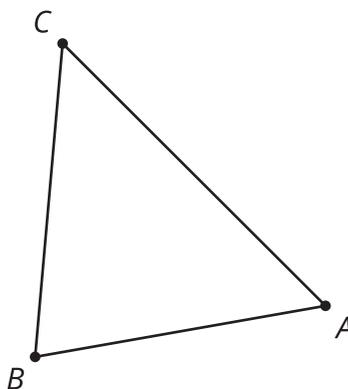
a. What can we say about the distance between point D and the sides and vertices of triangle ABC ?

b. What can we say about the distance between point E and the sides and vertices of triangle ABC ?



(From Unit 7, Lesson 6.)

5. Construct the incenter of the triangle. Explain your reasoning.



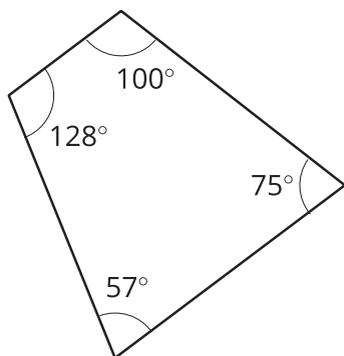
(From Unit 7, Lesson 6.)

6. The angles of triangle ABC measure 30 degrees, 40 degrees, and 110 degrees. Will its circumcenter fall inside the triangle, on the triangle, or outside the triangle? Explain your reasoning.

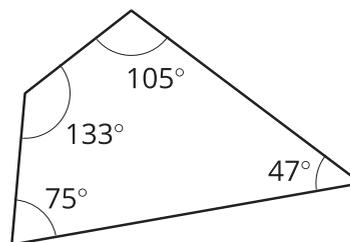
(From Unit 7, Lesson 5.)

7. The images show 2 possible blueprints for a park. The park planners want to build a water fountain that is equidistant from each of the corners of the park. Is this possible for either park? Explain or show your reasoning.

park A



park B



(From Unit 7, Lesson 4.)

8. Triangle ABC has vertices at $(-8, 2)$, $(2, 6)$, and $(10, 2)$. What is the point of intersection of the triangle's medians?

(From Unit 6, Lesson 16.)