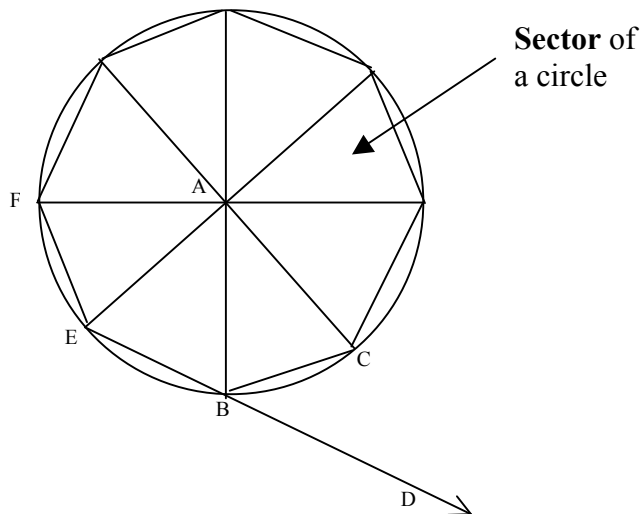# GEOMETRY AT GREAT AMERICA

CARROUSEL: Sectors of a Circle

The carrousel at the entrance to the park is a circular ride, and aspects of its structural design and decoration identify sectors of the circle. In this activity, you will work with properties of polygons and circles. Here are several terms you will need to know to complete this activity:

Sector of a circle

∠CAB, ∠BAE and ∠EAF are **central angles.**

∠CBD is an **exterior angle** of the polygon inscribed in circle A. It is adjacent and supplementary to **interior** ∠**CBE.**

$\overline{AF}, \overline{AE}$ and *arc FE* bound **sector FAE.** A slice of pizza or cake is a good example of a sector of a circle.

(1) Observe the structural design and decoration of the carrousel and determine how many sides are in this regular polygon. Sketch the polygon and label your sketch appropriately. Identify one central angle in the polygon and calculate its measure. Identify one interior angle and calculate its measure. Also identify one exterior angle and find its measure.

(2) Estimate the radius of the carrousel's circular platform. Find the difference in the area of the circular platform and the plane area of the structure's regular polygon.