

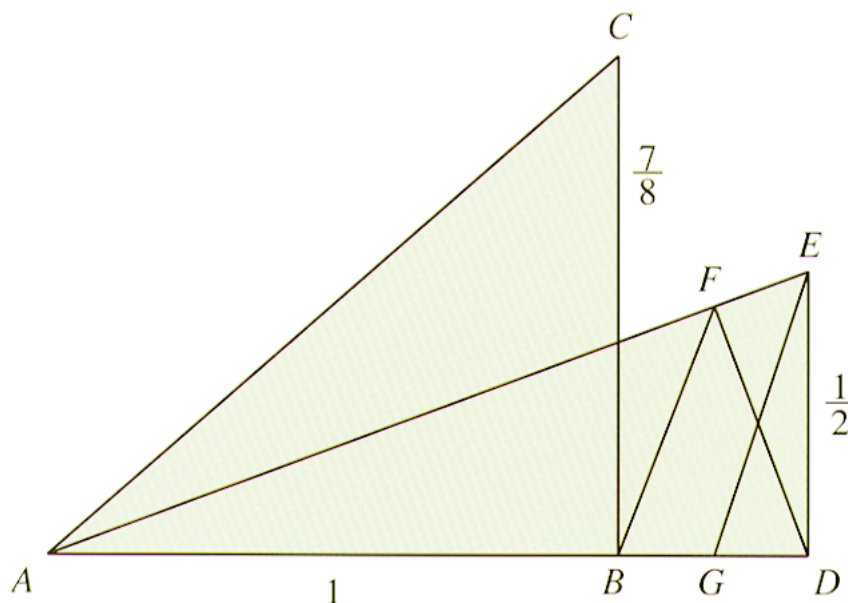
# A Construction for $\pi$

## Problem-of-the-Week

### The Problem

In this construction, the measure of segment  $BG$  gives a decimal approximation for  $\pi$  to six decimal places. Use the drawing and the following facts to find the measure of  $BG$ .

Segments  $AC$  and  $AD$  are congruent.  $FB$  is parallel to  $EG$ .  $FD$  is perpendicular to  $AE$ . Notice that  $CB$  has a measure of  $0.875$  and  $ED$  has a measure of  $0.5$ .



### Strategies and Hints

1. How can you use  $AB$  and  $BC$  to find  $AD$ ?
2. Now use  $AD$  and  $ED$  to find  $AE$ .
3. Now use the similar triangles  $FED$  and  $DEA$  to find  $FE$ . Then subtract to get  $AF$ .
4. Another pair of similar triangles can be used to find  $AG$ . From  $AG$  you can compute  $BG$ .

