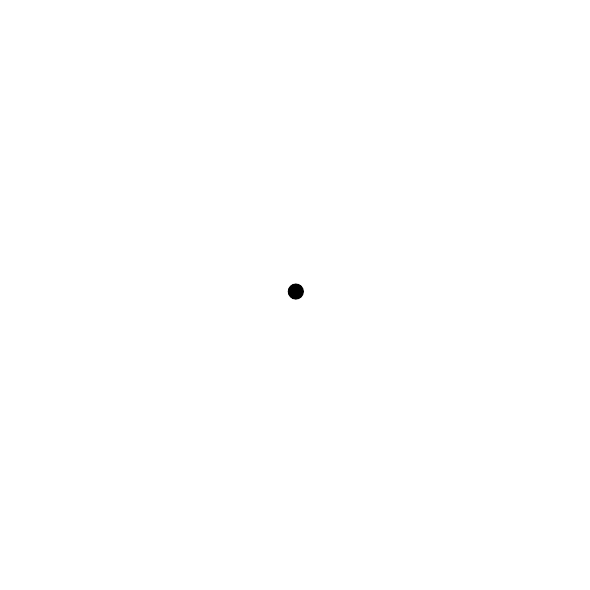
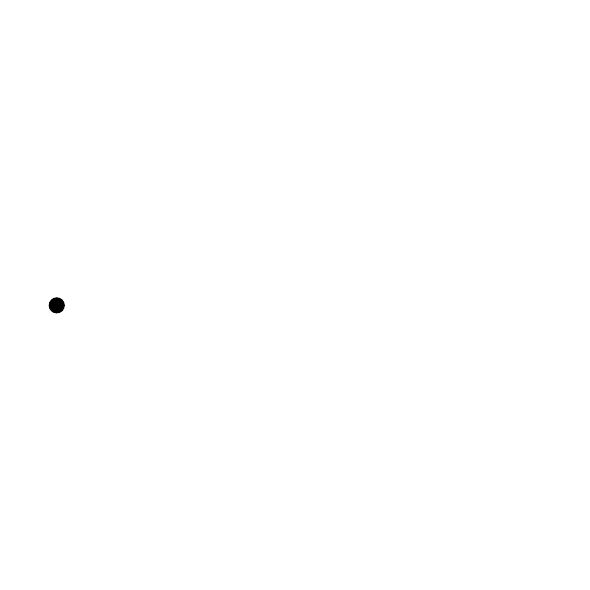
## Unit 4 Lesson 11: Approximating Pi

### 1 More Sides (Warm up)

#### Student Task Statement





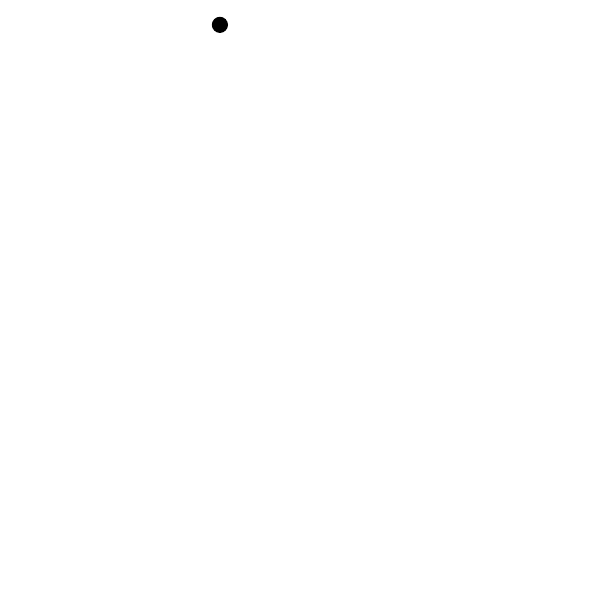
Calculate the area of the shaded regions.

### 2 N Sides

#### Student Task Statement

Here is one part of a regular -sided polygon inscribed in a circle of radius 1.

Come up with a general formula for the perimeter of the polygon in terms of .  Explain or show your reasoning.



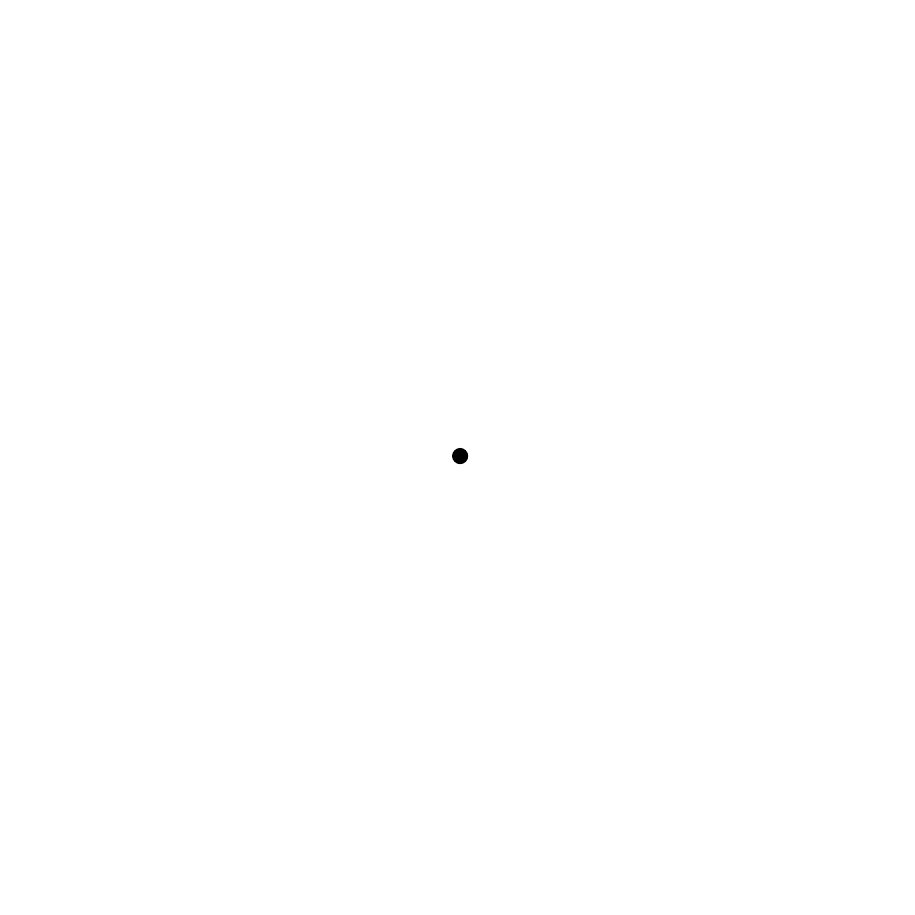
### 3 So Many Sides

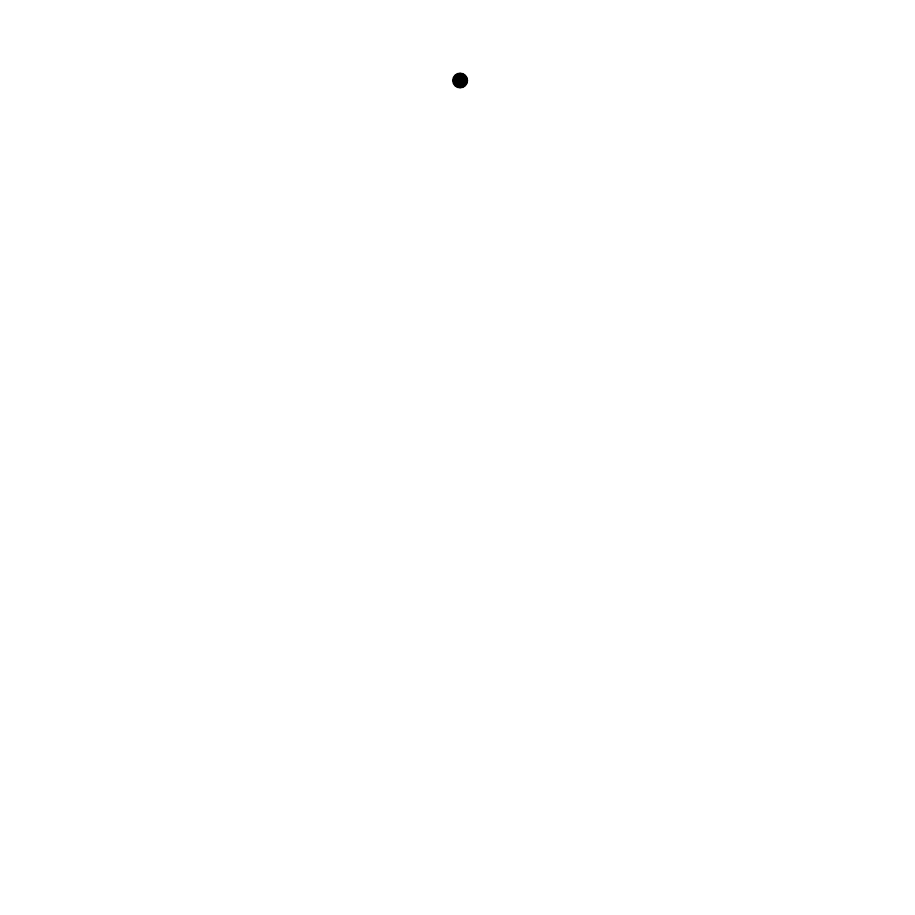
#### Student Task Statement

Let's use the expression you came up with to approximate the value of .

1. How close is the approximation when ?
2. How close is the approximation when ?
3. How close is the approximation when ?
4. How close is the approximation when ?
5. What value of approximates the value of to the thousandths place?

#### Images for Activity Synthesis







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