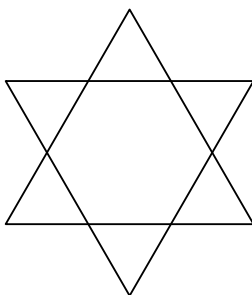


Review 1

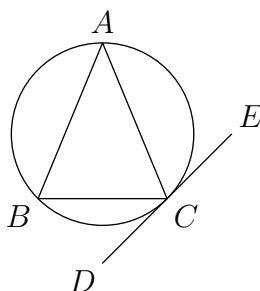
Hope Chinese School Fall Week 7

September 30, 2017

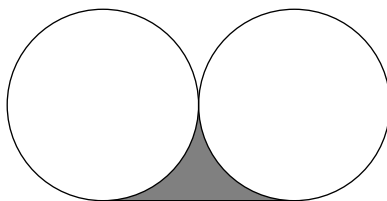
1. A large map of the United States uses a scale of $2 \text{ cm} = 2.5 \text{ km}$. On the map, the distance between two cities is 1 meter. What is the actual distance between the two cities?
2. A unit hexagon is composed of a regular hexagon of side length 1 and its equilateral triangular extensions, as shown in the diagram. What is the ratio of the area of the extensions to the area of the original hexagon?



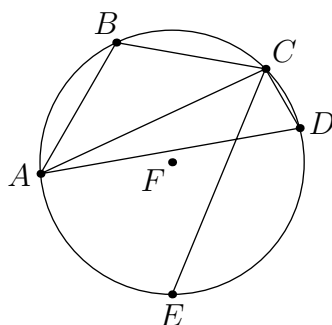
3. In the diagram to the right, triangle ABC is inscribed in the circle and $AC = AB$. The measure of angle BAC is 42 degrees and segment ED is tangent to the circle at point C . What is the measure of angle ACD ?



4. Tim drove at an average rate of 30 miles per hour, and Kim drove at an average rate of 40 miles per hour for three times as long as Tim. Together they drove a total of 225 miles. How far did Tim drive?
5. Each of the circles shown below has an area of 4π inches. The line is tangent to both circles. What is the area of the shaded region?



6. The base of isosceles $\triangle ABC$ is 24 and its area is 60. What is the length of one of the congruent sides?
7. In isosceles triangle ABC , angle BAC and angle BCA measure 35 degrees. What is the measure of angle CDA ?



8. An arithmetic sequence of 41 positive integers has a sum of 2009. If there is only one one-digit integer in the sequence, what is that one-digit integer?
9. Sam leaves home at the same time each morning and drives directly to work. If his travel speed averages 30 miles per hour, he will be 18 minutes late for work. If his travel speed averages 45 miles per hour, he will arrive 8 minutes early. What is the total number of miles between Sam's home and work?
10. ★ Eight semicircles line the inside of a square with side length 2 as shown. What is the radius of the circle tangent to all of these semicircles?

