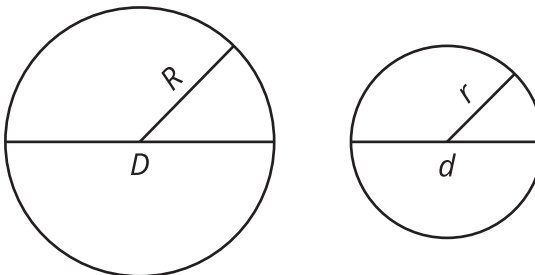


Lesson 10 Practice Problems

1. Here are 2 circles. The smaller circle has radius r , circumference c , and diameter d . The larger circle has radius R , circumference C , and diameter D . The larger circle is a dilation of the smaller circle by a factor of k .

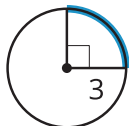


Using the circles, write 3 pairs of equivalent ratios. Find the value of each set of ratios you wrote.

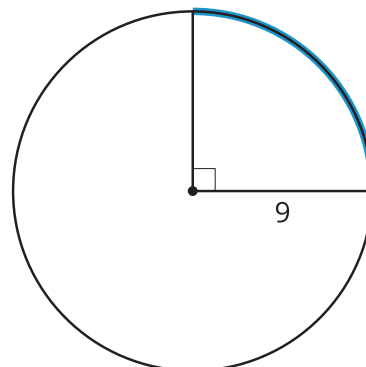
2. Tyler is confident that all circles are similar, but he cannot explain why this is true. Help Tyler explain why all circles are similar.

3. Circle B is a dilation of circle A.

circle A



circle B



- What is the scale factor of dilation?
- What is the length of the highlighted arc in circle A?
- What is the length of the highlighted arc in circle B?
- What is the ratio of the arc lengths?
- How does the ratio of arc length compare to the scale factor?

4. Kiran cuts out a square piece of paper with side length 6 inches. Mai cuts out a paper sector of a circle with radius 6 inches, and calculates the arc length to be 4π inches. Whose paper is larger? Explain or show your reasoning.

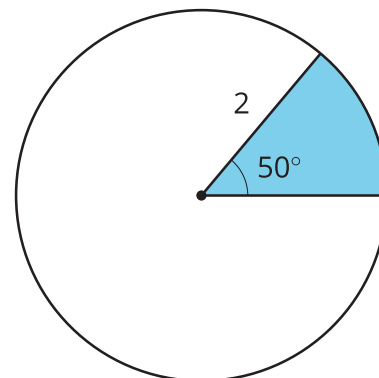
(From Unit 7, Lesson 9.)

5. A circle has radius 3 centimeters. Suppose an arc on the circle has length 4π centimeters. What is the measure of the central angle whose radii define the arc?

(From Unit 7, Lesson 9.)

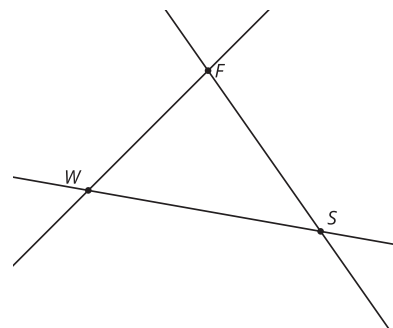
6. A circle with a shaded sector is shown.

- a. What is the area of the shaded sector?
- b. What is the length of the arc that outlines this sector?



(From Unit 7, Lesson 8.)

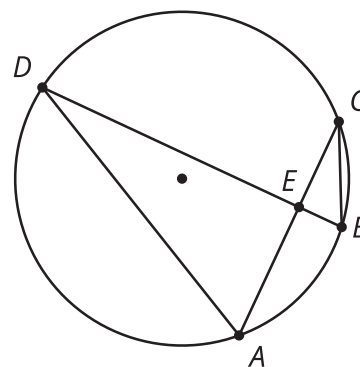
7. The towns of Washington, Franklin, and Springfield are connected by straight roads. The towns wish to build an airport to be shared by all of them.



- a. Where should they build the airport if they want it to be the same distance from each town's center? Describe how to find the precise location.
- b. Where should they build the airport if they want it to be the same distance from each of the roads connecting the towns? Describe how to find the precise location.

(From Unit 7, Lesson 7.)

8. Chords AC and DB intersect at point E . Select **all** pairs of angles that must be congruent.



- A. angle $A D B$ and angle $A C B$
- B. angle $A D B$ and angle $C A D$
- C. angle $D E A$ and angle $C E B$
- D. angle $C A D$ and angle $C B D$
- E. angle $B C A$ and angle $C B D$

(From Unit 7, Lesson 2.)