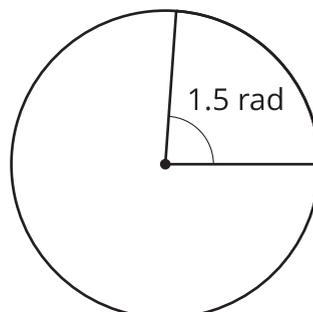


## Lesson 11 Practice Problems

1. Here is a central angle that measures 1.5 radians. Select **all** true statements.

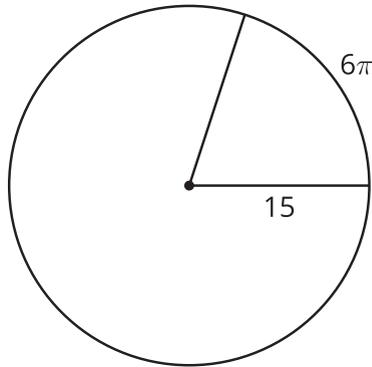


- A. The radius is 1.5 times longer than the length of the arc defined by the angle.
  - B. The length of the arc defined by the angle is 1.5 times longer than the radius.
  - C. The ratio of arc length to radius is 1.5.
  - D. The ratio of radius to arc length is 1.5.
  - E. The area of the whole circle is 1.5 times the area of the slice.
  - F. The circumference of the whole circle is 1.5 times the length of the arc formed by the angle.
2. Match each arc length  $\ell$  and radius  $r$  with the measure of the central angle of the arc in radians.

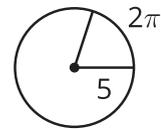
- |                                  |                            |
|----------------------------------|----------------------------|
| A. $r = 2, \ell = \frac{\pi}{2}$ | 1. $\frac{\pi}{5}$ radians |
| B. $r = 3, \ell = 2$             | 2. $\frac{2}{3}$ radians   |
| C. $r = 3.5, \ell = 2.8$         | 3. 0.75 radians            |
| D. $r = 4, \ell = 3$             | 4. $\frac{\pi}{4}$ radians |
| E. $r = 5, \ell = \pi$           | 5. 0.8 radians             |
| F. $r = 6, \ell = 4$             |                            |

3. Han thinks that since the arc length in circle A is longer, its central angle is larger. Do you agree with Han? Show or explain your reasoning.

circle A

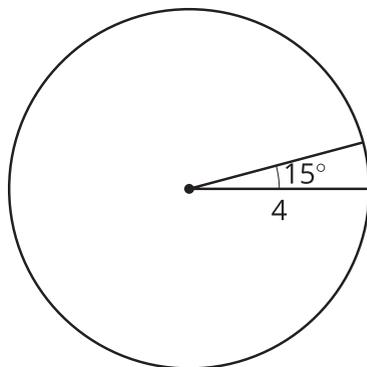


circle B

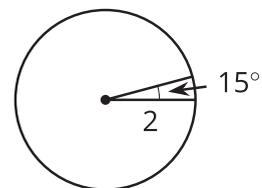


4. Circle B is a dilation of circle A.

circle A



circle B

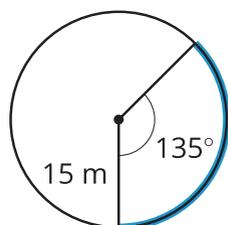


- What is the scale factor?
- What is the area of the 15 degree sector in circle A?
- What is the area of the 15 degree sector in circle B?
- What is the ratio of the areas of the sectors?
- How does the ratio of areas of the sectors compare to the scale factor?

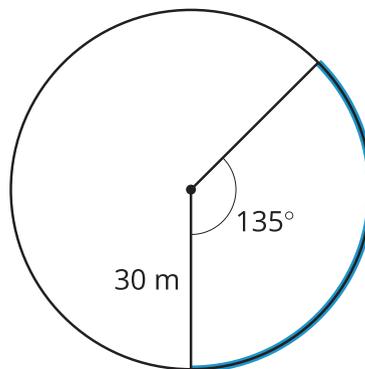
(From Unit 7, Lesson 10.)

5. Priya and Noah are riding different size Ferris wheels at a carnival. They started at the same time. The highlighted arcs show how far they have traveled.

**Noah's Ferris wheel**



**Priya's Ferris wheel**



- a. How far has Noah traveled?
- b. How far has Priya traveled?
- c. If the Ferris wheels will each complete 1 revolution, who do you think will finish first?

(From Unit 7, Lesson 10.)

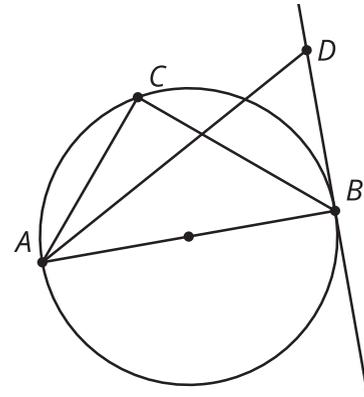
6. A circle has radius 8 units, and a central angle is drawn in. The length of the arc defined by the central angle is  $4\pi$  units. Find the area of the sector outlined by this arc.

(From Unit 7, Lesson 9.)

7. Clare is trying to explain how to find the area of a sector of a circle. She says, "First, you find the area of the whole circle. Then, you divide by the radius." Do you agree with Clare? Explain or show your reasoning.

(From Unit 7, Lesson 8.)

8. Line  $BD$  is tangent to a circle with diameter  $AB$ . List 2 right angles.



(From Unit 7, Lesson 3.)