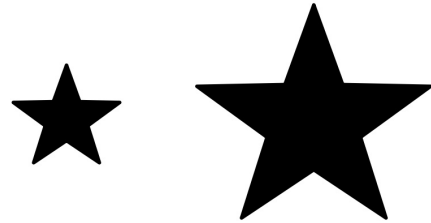


Launch:

List everything you know about the term "similar"

Same



5.4

Getting Started

Objective: To warm up to the ideas of the investigation.

For You to Explore

All circles are similar. This means that all circles have the same shape, but not necessarily the same size.

1. Two circles have radii 12 cm and 30 cm. Can one of them be scaled to give a congruent copy of the other? Explain.
2. Two circles have radii r and R . Can one of them be scaled to give a congruent copy of the other? Explain.

$$\begin{aligned} 1. \quad 12x &= 30 \\ &\div 12 \quad \div 12 \\ x &= 2.5 \end{aligned}$$

$$\begin{aligned} 2. \quad rx &= R \\ &\div r \quad \div r \\ x &= \frac{R}{r} \end{aligned}$$

3. a. Use a ruler and compass or geometry software to copy and complete this table. All the polygons are regular.

Number of Sides	Perimeter Apothem
4	$37.6/4.7 \approx 8$
6	$37.7/5.44 \approx 6.93$
8	$26/3.92 \approx 6.63$
16	$32.6/5.13 \approx 6.35$

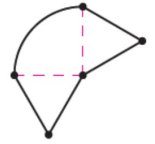
- b. Continue the table for larger numbers of sides.
- c. Do the ratios seem to approach any particular number?

$$\frac{C}{r} = 2\pi = 6.28$$

On Your Own

Page 375: 4, 5

4. This figure is made up of a quarter circle with radius 1 cm and two equilateral triangles. If the circumference of the whole circle is 6.28 cm, what is the perimeter of the whole shape?



5. A circle's area is 25.1 square centimeters. A square is inscribed in the circle. Its apothem is 2 cm. What is the total area of the shaded regions shown in the figure?

