

LESSON **9-2** **Geometry Lab Recording Sheet** pp. 598–599
Develop π

Try This

Activity 1
Try This

1. Do you think it is possible to draw a circle whose ratio of circumference to diameter is not π ? _____

Why or why not?

2. How does knowing the relationship between circumference, diameter, and π help you determine the formula for circumference?

3. Use a ribbon to make a π measuring tape. Mark off increments of π inches or π cm on your ribbon as accurately as possible. How could you use this π measuring tape to find the diameter of a circular object?

Use your π measuring tape to measure 5 circular objects. Give the circumference and diameter of each object.

1. Object _____ Circumference _____
2. Object _____ Circumference _____
3. Object _____ Circumference _____
4. Object _____ Circumference _____
5. Object _____ Circumference _____

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9-2 *Develop* π continued

Activity 2

4. Let P1 represent the perimeter of the smaller square, P2 represent the perimeter of the larger square, and C represent the circumference of the circle. Measure the squares to find P1 and P2 and substitute the values into the inequality below. $P1 < C < P2$

5. Divide each expression in the inequality by the diameter of the circle. Why does this give you an inequality in terms of π ? Complete the inequality below.

$\underline{\quad ? \quad} < \pi < \underline{\quad ? \quad}$

Try This

4. Use the perimeters of the inscribed and circumscribed regular hexagons to write an inequality for π . Assume the diameter of each circle is 2 units.

5. Compare the inequalities you found for π . What do you think would be true about your inequality if you used regular polygons with more sides?

How could you use inscribed and circumscribed regular polygons to estimate π ?

6. An alternate definition of π is the area of a circle with radius 1. How could you use this definition and the figures above to estimate the value of π ?
