9. *ABCDE* is a regular pentagon with radius 10.
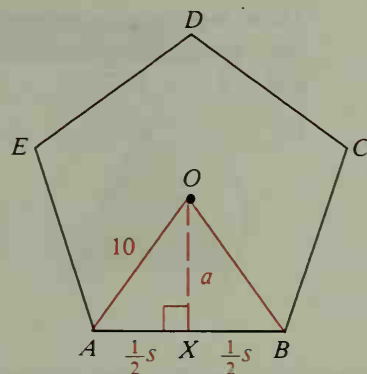 **a.** Find the measure of ∠*AOB*.
  b. Explain why *m*∠*AOX* = 36.

  Note: For parts (c)–(e), use a calculator or the table on page 311.

  c. $\cos 36° = \frac{a}{?}$. To the nearest tenth, $a \approx$ _?_.

  d. $\sin 36° = \frac{\frac{1}{2}s}{?}$. To the nearest tenth, $s \approx$ _?_.
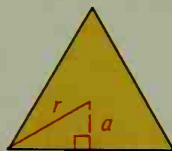
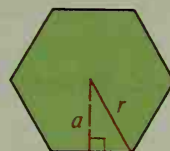 **e.** Find the perimeter and area of the pentagon.

Written Exercises

Copy and complete the tables for the regular polygons shown. In these tables, *p* represents the perimeter and *A* represents the area.
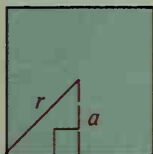
		r	*a*	*A*
A	**1.**	$8\sqrt{2}$	?	?
	2.	?	5	?
	3.	?	?	49
	4.	?	$\sqrt{6}$	?

	r	*a*	*p*	*A*
5.	6	?	?	?
6.	?	4	?	?
7.	?	?	12	?
8.	?	?	$9\sqrt{3}$	?

	r	*a*	*p*	*A*
9.	4	?	?	?
10.	?	$5\sqrt{3}$	?	?
11.	?	6	?	?
12.	?	?	$12\sqrt{3}$	?

Find the area of each polygon.

B **13.** An equilateral triangle with radius $4\sqrt{3}$ **14.** A square with radius 8*k*

15. A regular hexagon with perimeter 72   **16.** A regular hexagon with apothem 4

17. A regular decagon is shown inscribed in a circle with radius 1.
  a. Explain why *m*∠*AOX* = 18.
  b. Use a calculator or the table on page 311 to evaluate *OX* and *AX* below.
  $\sin 18° = \frac{AX}{1}$, so $AX \approx$ _?_.
  $\cos 18° = \frac{?}{?}$, so $OX \approx$ _?_.
  c. Perimeter of decagon ≈ _?_
  d. Area of △*AOB* ≈ _?_
  e. Area of decagon ≈ _?_