

9.  $ABCDE$  is a regular pentagon with radius 10.

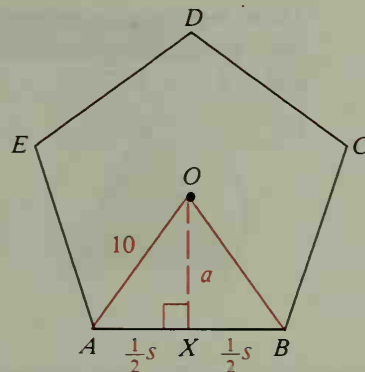
- Find the measure of  $\angle AOB$ .
- Explain why  $m\angle AOX = 36^\circ$ .

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

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

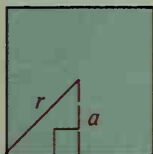
d.  $\sin 36^\circ = \frac{\frac{1}{2}s}{?}$ . To the nearest tenth,  $s \approx ?$ .

e. Find the perimeter and area of the pentagon.

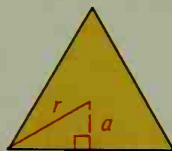


## Written Exercises

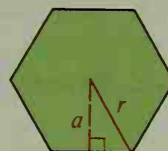
Copy and complete the tables for the regular polygons shown. In these tables,  $p$  represents the perimeter and  $A$  represents the area.



$r$	$a$	$A$
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.

**A** 13. An equilateral triangle with radius  $4\sqrt{3}$

15. A regular hexagon with perimeter 72

17. A regular decagon is shown inscribed in a circle with radius 1.

- Explain why  $m\angle AOX = 18^\circ$ .
- Use a calculator or the table on page 311 to evaluate  $OX$  and  $AX$  below.

$\sin 18^\circ = \frac{AX}{1}$ , so  $AX \approx ?$ .

$\cos 18^\circ = \frac{?}{1}$ , so  $OX \approx ?$ .

- Perimeter of decagon  $\approx ?$
- Area of  $\triangle AOB \approx ?$
- Area of decagon  $\approx ?$

14. A square with radius  $8k$

16. A regular hexagon with apothem 4

