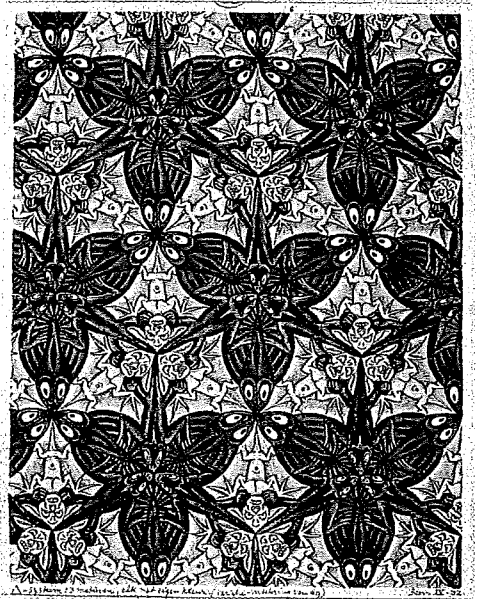


"Drawings showing how a surface can be regularly filled with similar-shaped figures which are contiguous to one another, without leaving any open spaces, are my richest source of inspiration."

—M. C. ESCHER

Tessellations that are not restricted to the repeated use of regular polygons are endless in number. They are prominent in Islamic art, Italian mosaics, quilts, and ceramics. The Dutch artist M. C. Escher (1898–1972) created a dazzling array of prints, drawings, and paintings using tessellations composed of stylized interlocking animals. Escher's art reflects the mathematics that underlies all things, while creating surreal manipulations of space and perspective that make gentle fun of consensus reality.

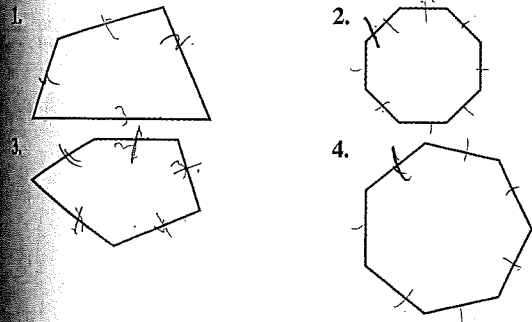


M.C. Escher, *Symmetry Drawing, E85 (Lizard, Fish, Bat)*, drawn at Baarn, April, 1952, ink, pencil, watercolor. ©2006 The M.C. Escher Company, Holland. All rights reserved.

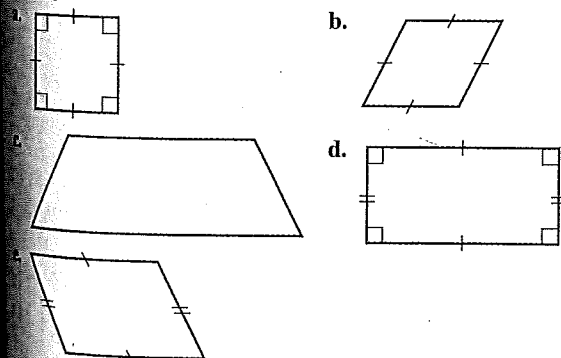
**EXERCISE SET 10.3** ●●●●●●●●

**Practice Exercises**

In Exercises 1–4, use the number of sides to name the polygon.



Use these quadrilaterals to solve Exercises 5–10.

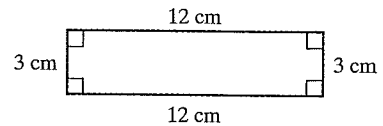


5. Which of these quadrilaterals have opposite sides that are parallel? Name these quadrilaterals.
6. Which of these quadrilaterals have sides of equal length that meet at a vertex? Name these quadrilaterals.
7. Which of these quadrilaterals have right angles? Name these quadrilaterals.
8. Which of these quadrilaterals do not have four sides of equal length? Name these quadrilaterals.

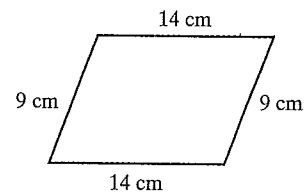
9. Which of these quadrilaterals is not a parallelogram? Name this quadrilateral.
10. Which of these quadrilaterals is/are a regular polygon? Name this/these quadrilateral(s).

In Exercises 11–20, find the perimeter of the figure named and shown. Express the perimeter using the same unit of measure that appears on the given side or sides.

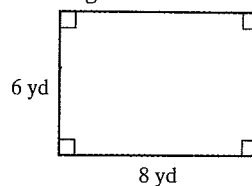
11. Rectangle



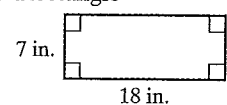
12. Parallelogram



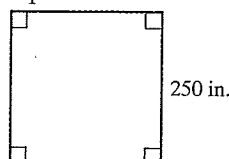
13. Rectangle



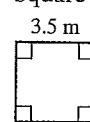
14. Rectangle



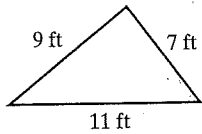
15. Square



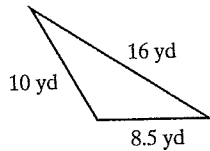
16. Square



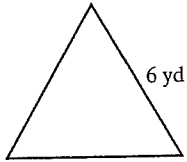
17. Triangle



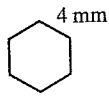
18. Triangle



19. Equilateral triangle

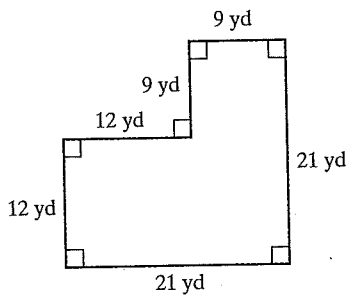


20. Regular hexagon

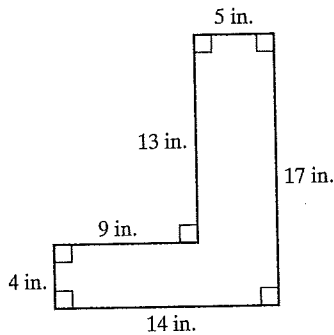


In Exercises 21–24, find the perimeter of the figure shown. Express the perimeter using the same unit of measure that appears on the given side or sides.

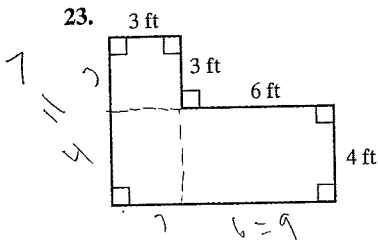
21.



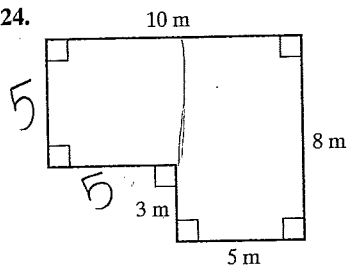
22.



23.



24.



25. Find the sum of the measures of the angles of a five-sided polygon.

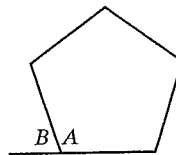
26. Find the sum of the measures of the angles of a six-sided polygon.

27. Find the sum of the measures of the angles of a quadrilateral.

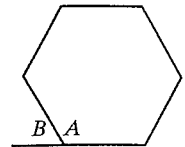
28. Find the sum of the measures of the angles of a heptagon.

In Exercises 29–30, each figure shows a regular polygon. Find the measures of angle A and angle B.

29.

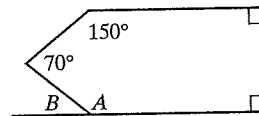


30.

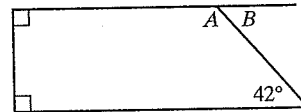


In Exercises 31–32, a. Find the sum of the measures of the angles for the figure given; b. Find the measures of angle A and angle B.

31.



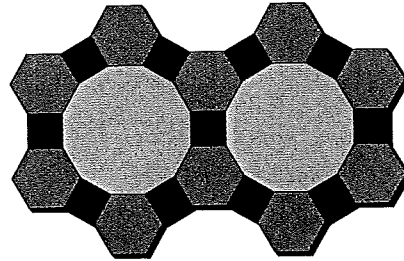
32.



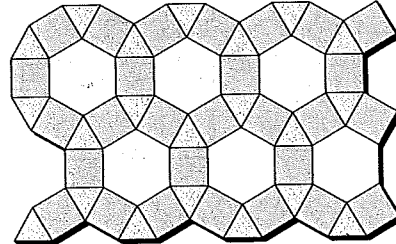
In Exercises 33–36, tessellations formed by two or more regular polygons are shown.

- Name the types of regular polygons that surround each vertex.
- Determine the number of angles that come together at each vertex, as well as the measures of these angles.
- Use the angle measures from part (b) to explain why the tessellation is possible.

33.



34.



35.

