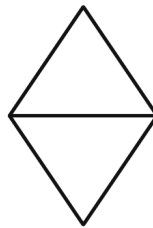Name _____ Date _____

Practice C

For use with pages 42–47

Tell whether the figure is a polygon. If it is not, *explain* why. If it is a polygon, tell whether it is *convex* or *concave*.
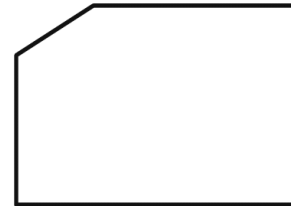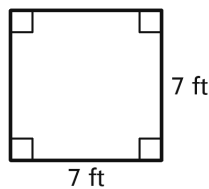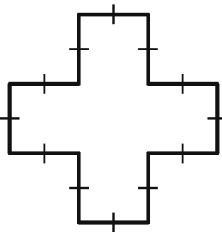
1.

2.

3.

Classify the polygon by the number of sides. Tell whether the polygon is *equilateral, equiangular,* or *regular. Explain* your reasoning.
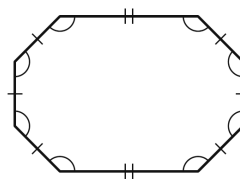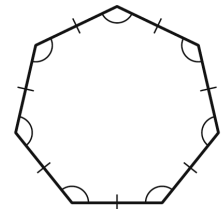
4.

7 ft

7 ft

5.

6.

7.

8. The lengths (in meters) of two sides of a regular heptagon are represented by the expressions $11x - 32$ and $6x - 7$. Find the length of a side of the heptagon.

9. The expressions $-3x + 67$ and $7x - 18$ represent the lengths (in inches) of two sides of a regular nonagon. Find the length of a side of the nonagon.

10. The expressions $6x + 36.5$ and $13x - 54.5$ represent the lengths (in feet) of two sides of a regular pentagon. Find the length of a side of the pentagon.

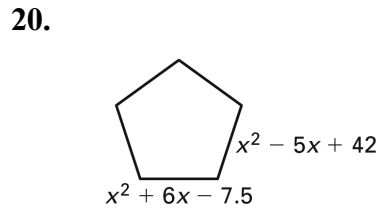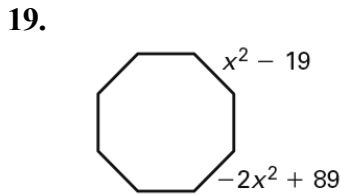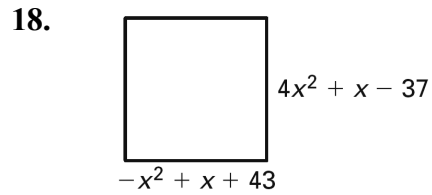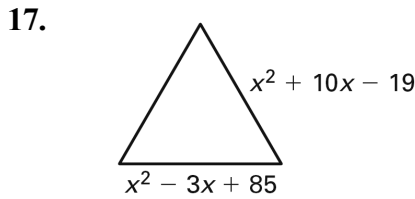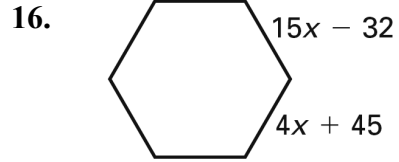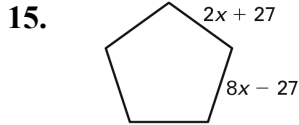**Draw a figure that fits the description.**

11. A convex hexagon

12. An equiangular octagon that is not equilateral

13. An equilateral octagon that is not equiangular   **14.** A concave heptagon
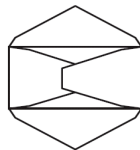
Each figure is a regular polygon. Expressions are given for two side lengths. Find the value of *x*.

15.

$2x + 27$

$8x - 27$

16.

$15x - 32$

$4x + 45$

17.

$x^2 + 10x - 19$

$x^2 - 3x + 85$

18.

$4x^2 + x - 37$

$-x^2 + x + 43$

19.

$x^2 - 19$

$-2x^2 + 89$

20.
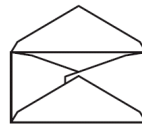
$x^2 - 5x + 42$

$x^2 + 6x - 7.5$

21. Envelope Envelope manufacturers fold a specially-shaped piece of paper to make an envelope, as shown below.
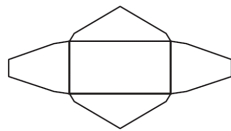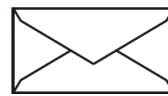
Step 1   Step 2   Step 3   Step 4

   a. What type of polygon is formed at each step?
   b. Tell whether each polygon is *convex* or *concave.*
   c. *Explain* the reason for the V-shaped notches that are at the ends of the folds.