**Find the <u>sum of the measures of the interior angles</u> of the indicated convex polygon.
Show your work.**

1. Hexagon	**2.** Dodecagon	**3.** 11-gon	**4.** 15-gon	**5.** 20-gon

**The sum of the measures of the interior angles of a convex polygon is given.
Classify the polygon by the number of sides.**

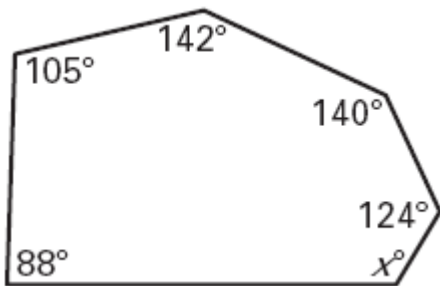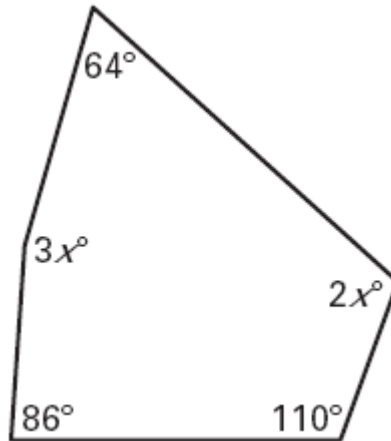| **6.** 180°	**7.** 540°	**8.** 900°	**9.** 1800°
Name: _____	Name: _____	Name: _____	Name: _____

Find the value of *x*. Set up an equation for each problem.

10.

142°
105°
140°
124°
88°
x°

11.

64°
3*x*°
86°   110°   2*x*°

12.

146°   158° 16*x*°
124°
34*x*°
102°   24*x*°

Find the value of *x*. Set up an equation for each problem.

13.

93° 75° *x*° 2*x*°

14.

60° 90° 2*x*° *x*° 4*x*°
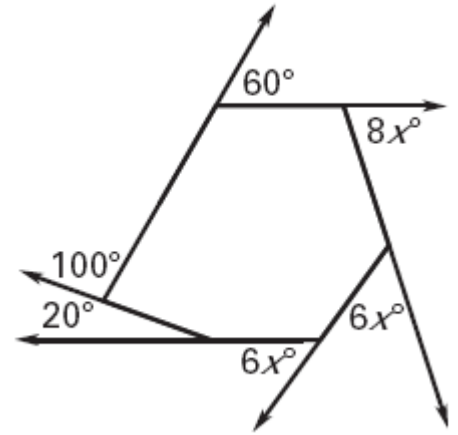
15.

60° 8*x*° 100° 20° 6*x*° 6*x*°
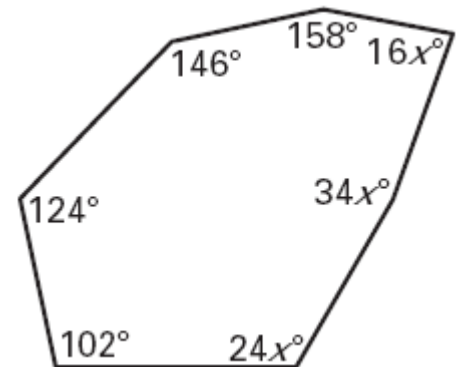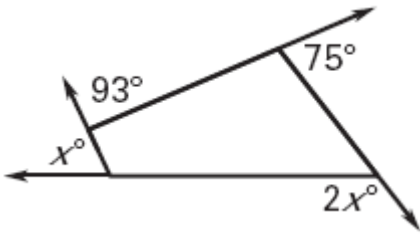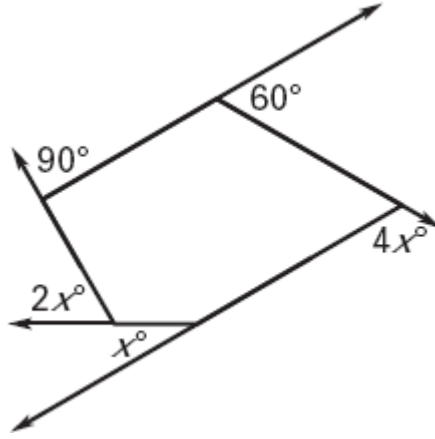
Answer each question. Show your work!!

16. What is the measure of **each exterior angle** of a regular nonagon?

17. The measures of the **exterior angles** of a convex quadrilateral are 90°, 10 *x*°, 5 *x*°, and 45°. What is the measure of the **largest exterior angle**?

18. The measures of the **interior angles** of a convex octagon are 45*x*°, 40 *x*°, 155°, 120°, 155°, 38x°, 158°, and 41 *x*°. What is the measure of the **smallest interior angle**?

Find the measures of an interior angle and an exterior angle of the indicated polygon. Show work!

19. Regular triangle

interior angle: _____

exterior angle: _____

20. Regular octagon
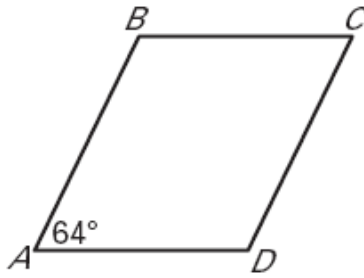
interior angle: _____

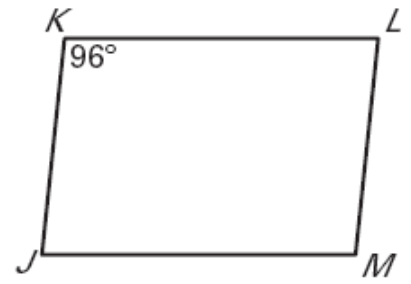exterior angle: _____

21. Regular 16-gon

interior angle: _____

exterior angle: _____

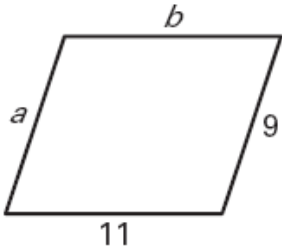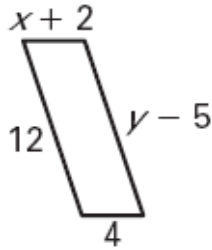| **Find the measure of the indicated angle in the parallelogram.**	
22. Find $m\angle B$ B C $64°$ A D	**23.** Find $m\angle M$. K L $96°$ J M

Find the value of each variable in the parallelogram. Show ALL work!

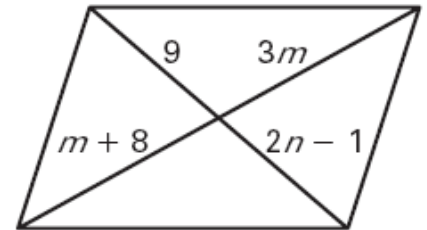| **24.** b a 9 11	**25.** $x + 2$ 12 $y - 5$ 4	**26.** 16 $(y - 60)°$ $56°$ $3x + 4$
27. $(f + 30)°$ 25 $8g - 3$ $72°$	**28.** $3j$ $6k$ $k + 10$ $5j - 9$	**29.** 9 $3m$ $m + 8$ $2n - 1$
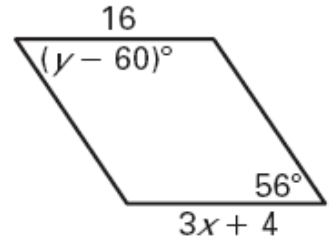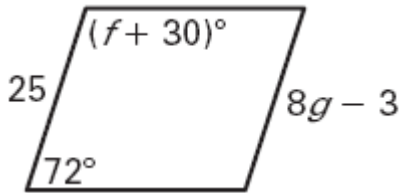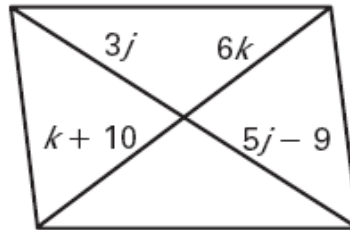
Find the indicated measure in parallelogram *ABCD*.

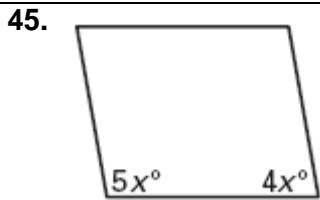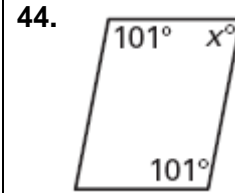| **30.** $m\angle AEB =$	**31.** $m\angle BAE =$	
32. $m\angle AED =$	**33.** $m\angle ECB =$	A B $80°$ $23°$ E
34. $m\angle BAD =$	**35.** $m\angle DCE =$	$117°$ D C
36. $m\angle ADC =$	**37.** $m\angle DCB =$	
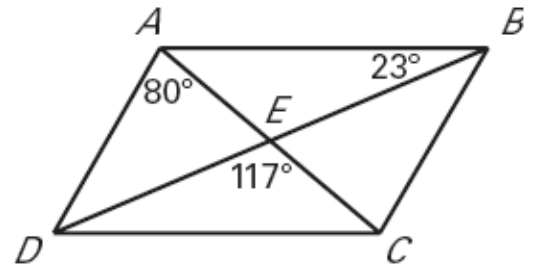
State the theorem can you use to show that the quadrilateral is a parallelogram.

38. 75° 105° 105°	**39.** 73 98 98 73
40. 3.6 5 5 3.6	**41.** 10 10
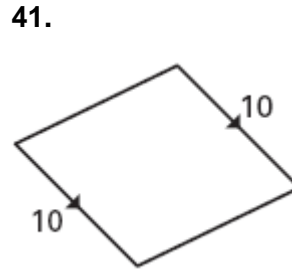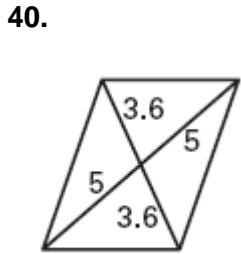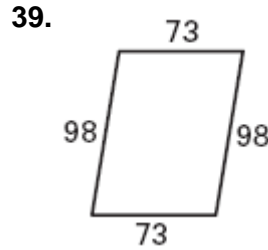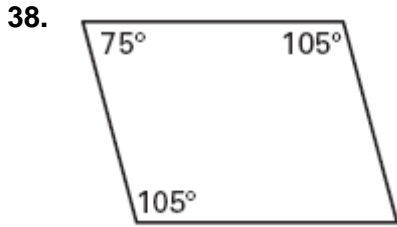
For what value of *x* is the quadrilateral a parallelogram? Show your work!

42. $2x - 1$ $x + 5$	**43.** $(5x - 7)°$ $(x + 1)°$	**44.** 101° $x°$ 101°

45. $5x°$ $4x°$	**46.** $3x - 11$ $x + 5$
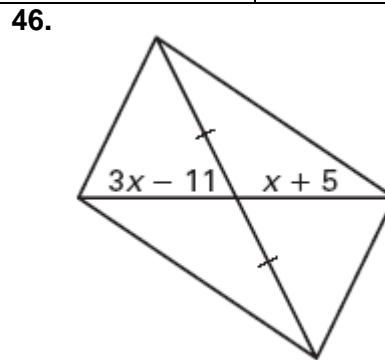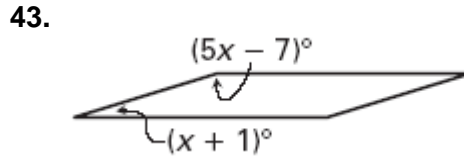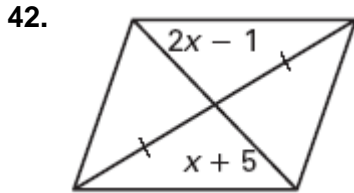
The vertices of quadrilateral *ABCD* are given. Draw *ABCD* in a coordinate plane and show that it is a parallelogram. Look back on the 5 ways and decide which one you want to use!

47. *A*(−2, −3), *B*(0, 5), *C*(6, 5), *D*(4, −3)	**48.** *A*(−2, 3), *B*(3, 2), *C*(3, −1), *D*(−2, 0)