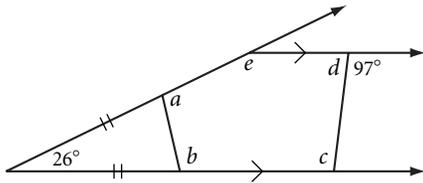


# Lesson 5.1 • Polygon Sum Conjecture

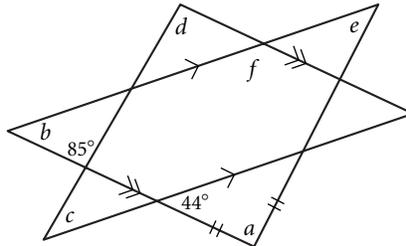
Name \_\_\_\_\_ Period \_\_\_\_\_ Date \_\_\_\_\_

In Exercises 1 and 2, find each lettered angle measure.

1.  $a = \underline{\hspace{1cm}}$ ,  $b = \underline{\hspace{1cm}}$ ,  $c = \underline{\hspace{1cm}}$ ,  
 $d = \underline{\hspace{1cm}}$ ,  $e = \underline{\hspace{1cm}}$



2.  $a = \underline{\hspace{1cm}}$ ,  $b = \underline{\hspace{1cm}}$ ,  $c = \underline{\hspace{1cm}}$ ,  
 $d = \underline{\hspace{1cm}}$ ,  $e = \underline{\hspace{1cm}}$ ,  $f = \underline{\hspace{1cm}}$

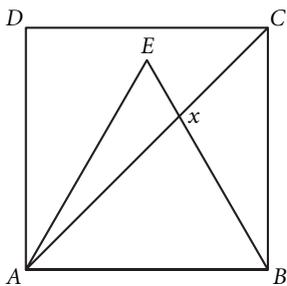


3. One exterior angle of a regular polygon measures  $10^\circ$ . What is the measure of each interior angle? How many sides does the polygon have?

4. The sum of the measures of the interior angles of a regular polygon is  $2340^\circ$ . How many sides does the polygon have?

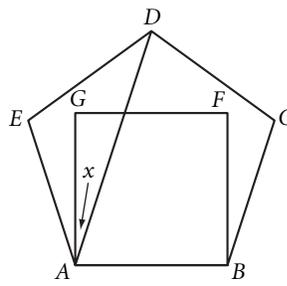
5.  $ABCD$  is a square.  $ABE$  is an equilateral triangle.

$x = \underline{\hspace{1cm}}$



6.  $ABCDE$  is a regular pentagon.  $ABFG$  is a square.

$x = \underline{\hspace{1cm}}$



7. Use a protractor to draw pentagon  $ABCDE$  with  $m\angle A = 85^\circ$ ,  $m\angle B = 125^\circ$ ,  $m\angle C = 110^\circ$ , and  $m\angle D = 70^\circ$ . What is  $m\angle E$ ? Measure it, and check your work by calculating.

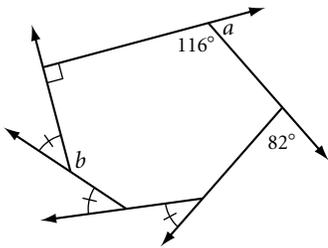
# Lesson 5.2 • Exterior Angles of a Polygon

Name \_\_\_\_\_ Period \_\_\_\_\_ Date \_\_\_\_\_

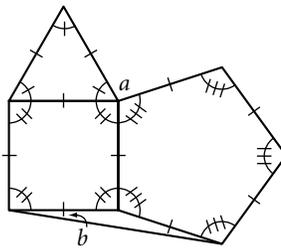
- How many sides does a regular polygon have if each exterior angle measures  $30^\circ$ ?
- How many sides does a polygon have if the sum of the measures of the interior angles is  $3960^\circ$ ?
- If the sum of the measures of the interior angles of a polygon equals the sum of the measures of its exterior angles, how many sides does it have?
- If the sum of the measures of the interior angles of a polygon is twice the sum of its exterior angles, how many sides does it have?

In Exercises 5–7, find each lettered angle measure.

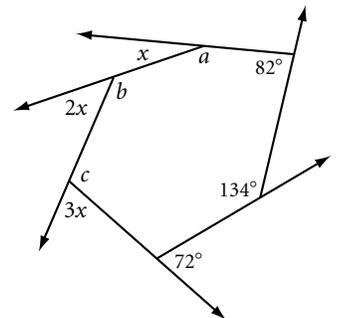
5.  $a =$  \_\_\_\_\_,  $b =$  \_\_\_\_\_



6.  $a =$  \_\_\_\_\_,  $b =$  \_\_\_\_\_



7.  $a =$  \_\_\_\_\_,  $b =$  \_\_\_\_\_,  
 $c =$  \_\_\_\_\_



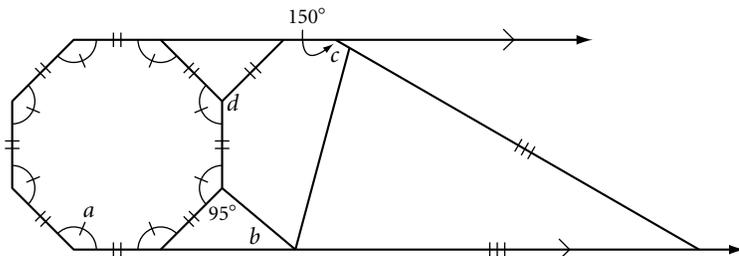
8. Find each lettered angle measure.

$a =$  \_\_\_\_\_

$b =$  \_\_\_\_\_

$c =$  \_\_\_\_\_

$d =$  \_\_\_\_\_



9. Construct an equiangular quadrilateral that is not regular.