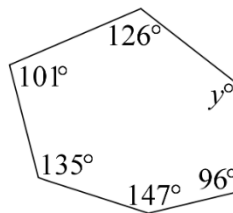


Name _____

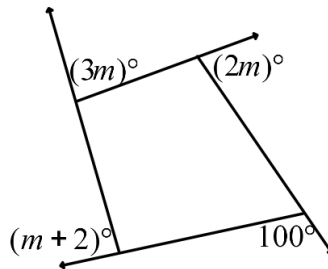
Properties of Polygons

1. Find the sum of the measures of the interior angles of an octagon.
2. Find the measure of one interior angle of a regular 22-gon.
3. Find the measure of an interior and an exterior angle of a regular 46-gon.

4. Find the value of y .



5. Find the value of m .

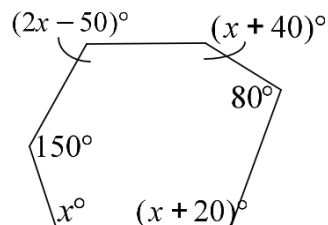


6. The measure of one exterior angle of a regular polygon is given. Find the number of sides for each.
 - a. 72°
 - b. 40°

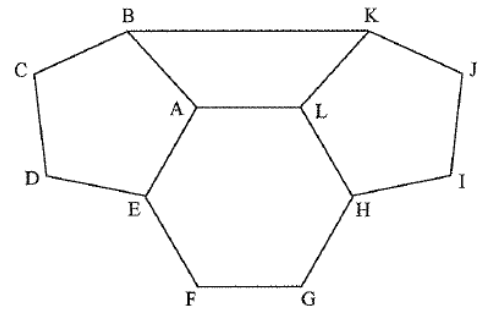
7. The sum of the interior angles of a polygon is 1620° . How many sides does it have?

8. $x =$ _____

$2x - 50 =$ _____



9. ABCDE and HIJKL are regular pentagons and AEFGL is a regular hexagon. If $\angle ABK \cong \angle LKB$, find $m\angle ABK$.

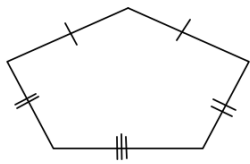


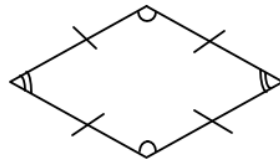
10. Can the interior angles of a polygon have a sum between 4300° and 4400° ? If so, how many sides can it have?

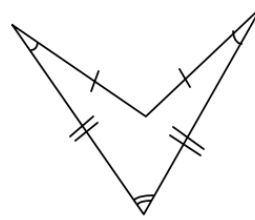
11. The measure of one interior angle of a regular polygon is 179° . How many sides does it have?

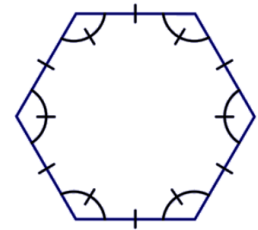
12. Is it possible for a regular polygon to have each of its interior angles measure 142° ? Support your answer.

13. Classify each polygon as regular/irregular, concave/convex, and by the number of sides.



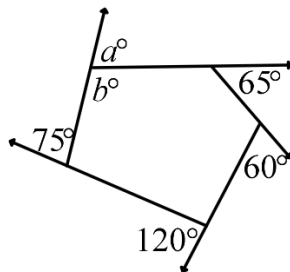




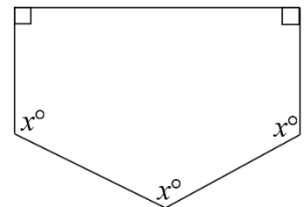


14. a = _____

b = _____



15. x = _____



Properties of Polygons Answers

1. Find the sum of the measures of the interior angles of an octagon.

1080°

2. Find the measure of one interior angle of a regular 22-gon.

$\approx 163.6^\circ$

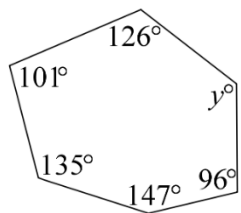
3. Find the measure of an interior and an exterior angle of a regular 46-gon.

Interior Angle $\approx 172.2^\circ$

Exterior Angle $\approx 7.8^\circ$

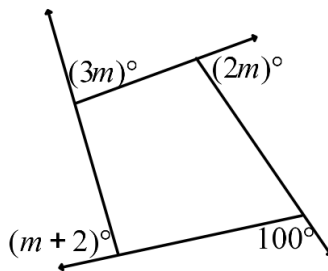
4. Find the value of y .

$y = 115$



5. Find the value of m .

$m = 43$



6. The measure of one exterior angle of a regular polygon is given. Find the number of sides for each.

- a. 72°

5

- b. 40°

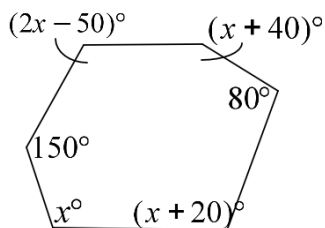
9

7. The sum of the interior angles of a polygon is 1620° . How many sides does it have?

11

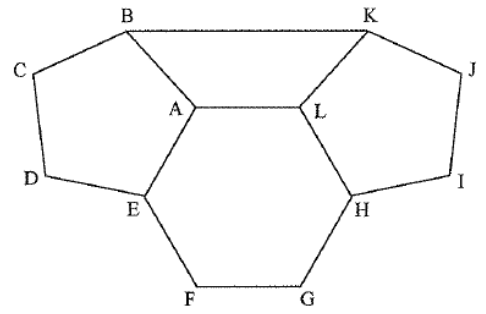
8. $x = 96$

$2x - 50 = 142$



9. ABCDE and HIJKL are regular pentagons and AEFGL is a regular hexagon. If $\angle ABK \cong \angle LKB$, find $m\angle ABK$.

48°



10. Can the interior angles of a polygon have a sum between 4300° and 4400° ? If so, how many sides can it have?

Yes - 26 sides

11. The measure of one interior angle of a regular polygon is 179° . How many sides does it have?

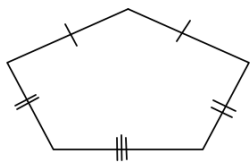
360

12. Is it possible for a regular polygon to have each of its interior angles measure 142° ? Support your answer.

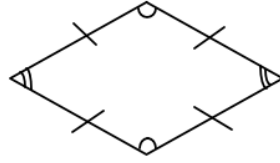
No: $\frac{(n-2)180}{n} = 142$

$n \approx 9.47 \rightarrow$ Because this does not come out to be a whole number, it is not possible for a regular polygon to have each of its interior angles measure 142° .

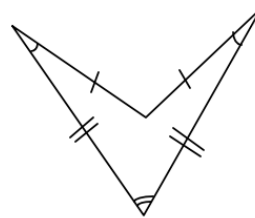
13. Classify each polygon as regular/irregular, concave/convex, and by the number of sides.



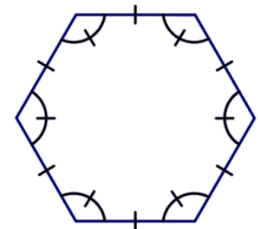
Irregular, convex
Pentagon



Irregular, convex
Quadrilateral



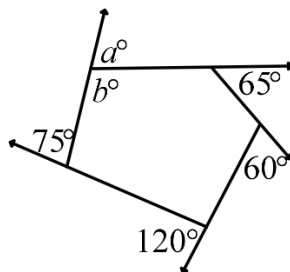
Irregular, concave
Quadrilateral



Regular, convex
Hexagon

14. $a = 40$

$b = 140$



15. $x = 120$

