Name _____ Date _____

1. If the number of sides in a polygon was doubled, the sum of its interior angles would increase by 1,080°. How many sides does the original polygon have?

2. If the measures of five interior angles of a hexagon are 133°, 111°, 92°, 153°, and 109°, what is the measure of the other interior angle?

3. A line segment that joins two nonconsecutive vertices of a polygon is _____.

(A) a diagonal
(B) a side
(C) an exterior angle
(D) an interior angle
(E) a convex

4. What is the sum of the measures of the interior angles of a pentagon?

(A) 1080°
(B) 720°
(C) 540
(D) 270°
(E) 900°

Enter answers in text boxes.

5. A _____ polygon is a polygon in which the measure of each angle is less than 180°.

(A) nonconvex
(B) equiangular
(C) equilateral
(D) convex
(E) regular

6. What is the measure of each interior angle in a regular pentagon?

(A) 90°
(B) 120°
(C) 198°
(D) 108
(E) 558°
(F) 128°

7. Which of the following cannot represent the measure of an exterior angle of a regular polygon?

(A) 40
(B) 20
(C) 72
(D) 90
(E) 47
(F) 60

8. What is the sum of the measures of the exterior angles of a polygon having *E* sides (one exterior angle at each vertex)?

(A) 1080°
(B) [E (E - 3)]°
(C) [(E - 2) * 180]°
(D) [180 (E - 2)]°
(E) 360
(F) (360 ÷ E)°

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9. If the sum of the measures of polygon is 2520 °, how many sides does the polygon have?

(A) 8
(B) 19
(C) 10
(D) 24
(E) 18
(F) 16

10. Polygon J has t sides. How many diagonals can be drawn inside of polygon J?

(A) t(t - 2) ÷ 2
(B) 4 (t)
(C) t(t - 2)
(D) t(t - 3) ÷ 2
(E) 2 (t - 4)
(F) t(t - 2) ÷ 3

11. Each point of a polygon at which two sides intersect is called _____.

(A) diagonal
(B) interior angle
(C) a side
(D) exterior angle
(E) a vertex

12. How many diagonals can be drawn inside of an octagon?

(A) 8
(B) 7
(C) 19
(D) 10
(E) None of the above

13. The measure of each interior angle in a polygon is 144°. What is the name of the polygon?

(A) octagon
(B) quadrilateral
(C) triangle
(D) hexagon
(E) decagon

14. Find the measure of each exterior angle of a regular octagon?

(A) 72°
(B) 1260°
(C) 90°
(D) 1080°
(E) 45°
(F) 40°

15. What is the number of sides in a regular polygon in which the measure of an interior angle is four more than twenty-one times the measure of an exterior angle?

16. If the measures of ten interior angles of a decagon are (109 + 2x)°, (116 + x)°, (34 + 4x)°, (3x + 69)°, (70 + 3x)°, (4x + 47)°, (2x + 95)°, (x + 116)°, (156 + x)°, and (4x + 53)°, what is the value of x?

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