

G.G.36: Interior and Exterior Angles of Polygons: Investigate, justify, and apply theorems about the sum of the measures of the interior and exterior angles of polygons

- 1 The sum of the interior angles of a polygon of n sides is

- 1) 360
- 2) $\frac{360}{n}$
- 3) $(n - 2) \cdot 180$
- 4) $\frac{(n - 2) \cdot 180}{n}$

- 2 The sum of the measures of the interior angles of an octagon is

- 1) 180°
- 2) 360°
- 3) 540°
- 4) $1,080^\circ$

- 3 What is the sum, in degrees, of the measures of the interior angles of a pentagon?

- 1) 180
- 2) 360
- 3) 540
- 4) 900

- 4 The number of degrees in the sum of the interior angles of a pentagon is

- 1) 72
- 2) 360
- 3) 540
- 4) 720

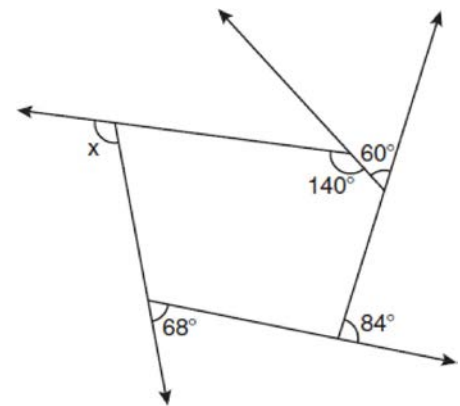
- 5 In which polygon does the sum of the measures of the interior angles equal the sum of the measures of the exterior angles?

- 1) triangle
- 2) hexagon
- 3) octagon
- 4) quadrilateral

- 6 For which polygon does the sum of the measures of the interior angles equal the sum of the measures of the exterior angles?

- 1) hexagon
- 2) pentagon
- 3) quadrilateral
- 4) triangle

- 7 The pentagon in the diagram below is formed by five rays.



What is the degree measure of angle x ?

- 1) 72
- 2) 96
- 3) 108
- 4) 112

- 8 The measures of five of the interior angles of a hexagon are 150° , 100° , 80° , 165° , and 150° . What is the measure of the sixth interior angle?

- 1) 75°
- 2) 80°
- 3) 105°
- 4) 180°

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Answer Section

1 ANS: 3 REF: 061218ge

2 ANS: 4

$$(n - 2)180 = (8 - 2)180 = 1080$$

REF: 080109a

3 ANS: 3

$$(n - 2)180 = (5 - 2)180 = 540$$

REF: 010514a

4 ANS: 3

$$(n - 2)180 = (5 - 2)180 = 540$$

REF: 011223ge

5 ANS: 4

sum of interior \angle s = sum of exterior \angle s

$$(n - 2)180 = n \left(180 - \frac{(n - 2)180}{n} \right)$$

$$180n - 360 = 180n - 180n + 360$$

$$180n = 720$$

$$n = 4$$

REF: 081016ge

6 ANS: 3

$$180(n - 2) = n \left(180 - \frac{180(n - 2)}{n} \right)$$

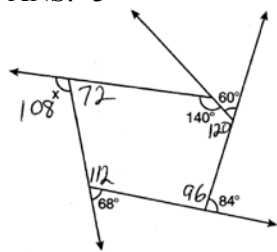
$$180n - 360 = 180n - 180n + 360$$

$$180n = 720$$

$$n = 4$$

REF: 081223ge

7 ANS: 3



. The sum of the interior angles of a pentagon is $(5 - 2)180 = 540$.

REF: 011023ge

8 ANS: 1

$$(n - 2)180 = (6 - 2)180 = 720$$

$$720 - (150 + 100 + 80 + 165 + 150) = 75$$

REF: 080820a