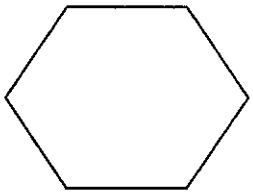
Name : _____ Score : _____

Exterior Angle

Sheet 1

Example:



Sum of Exterior angles = 360°

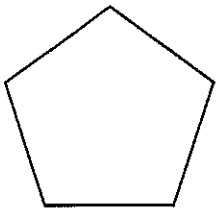
$$\text{Exterior angle} = \frac{\text{Sum of the exterior angles}}{\text{Number of sides}}$$

$$= \frac{360^\circ}{6}$$

$$= \mathbf{60^\circ}$$

Find the exterior angle for each regular polygon. Round the answer to nearest whole number.

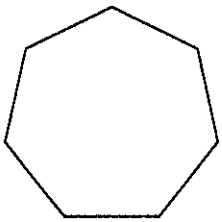
1)



Number of sides = _____

Each exterior angle = _____

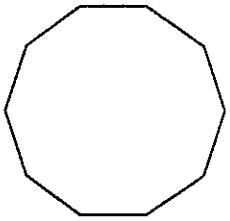
2)



Number of sides = _____

Each exterior angle = _____

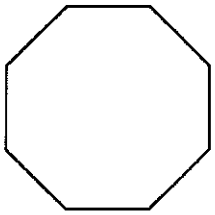
3)



Number of sides = _____

Each exterior angle = _____

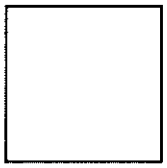
4)



Number of sides = _____

Each exterior angle = _____

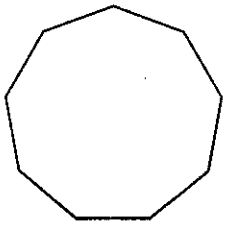
5)



Number of sides = _____

Each exterior angle = _____

6)



Number of sides = _____

Each exterior angles = _____

7) regular 12-gon

Number of sides = _____

Each exterior angle = _____

8) regular 15-gon

Number of sides = _____

Each exterior angle = _____

9) regular 11-gon

Number of sides = _____

Each exterior angle = _____

10) regular 19-gon

Number of sides = _____

Each exterior angle = _____

11) regular 17-gon

Number of sides = _____

Each exterior angle = _____

12) regular 13-gon

Number of sides = _____

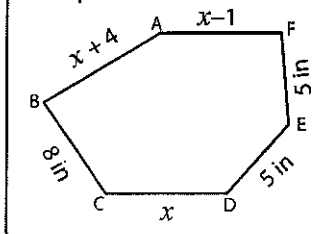
Each exterior angle = _____

Name : _____ Score : _____

Sheet 2

Polygon - Finding Unknown Sides

Example:



Perimeter = 42 in

Perimeter = Sum of length of the sides

$42 = x - 1 + 5 + 5 + x + 8 + x + 4$

$42 = 3x + 21$

$3x = 42 - 21 = 21$

$x = \frac{21}{3} = 7$ **in**

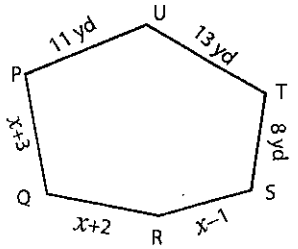
$\overline{AB} = x+4 = 7 + 4 =$ **11 in**

$\overline{CD} = x =$ **7 in**

$\overline{AF} = x-1 = 7 - 1 =$ **6 in**

Find the value of x and length of the unknown sides.

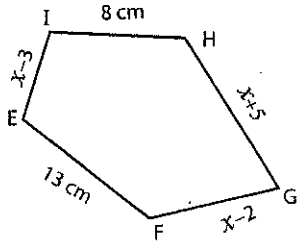
1)



Perimeter = 63 yd ; x = _____

$\overline{PQ}$ = _____ ; $\overline{QR}$ = _____ ; $\overline{RS}$ = _____

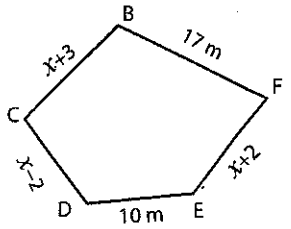
2)



Perimeter = 48 cm ; x = _____

$\overline{EI}$ = _____ ; $\overline{FG}$ = _____ ; $\overline{GH}$ = _____

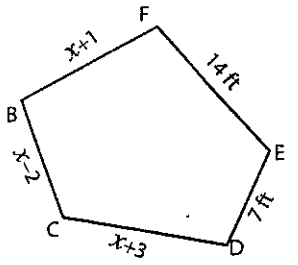
3)



Perimeter = 66 m ; x = _____

$\overline{CD}$ = _____ ; $\overline{EF}$ = _____ ; $\overline{BC}$ = _____

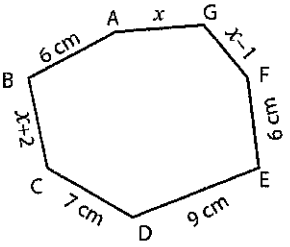
4)



Perimeter = 53 ft ; x = _____

$\overline{BC}$ = _____ ; $\overline{CD}$ = _____ ; $\overline{BF}$ = _____

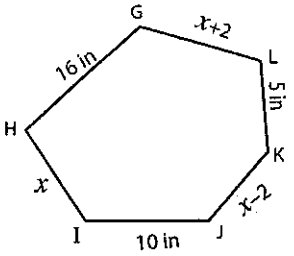
5)



Perimeter = 44 cm ; x = _____

$\overline{AG}$ = _____ ; $\overline{BC}$ = _____ ; $\overline{FG}$ = _____

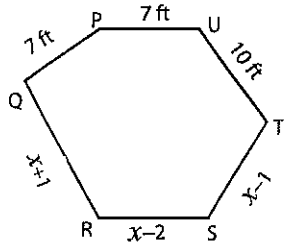
6)



Perimeter = 55 in ; x = _____

$\overline{HI}$ = _____ ; $\overline{JK}$ = _____ ; $\overline{GL}$ = _____

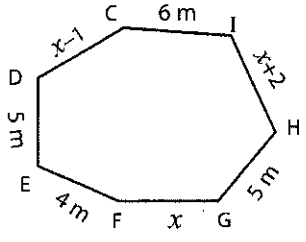
7)



Perimeter = 61 ft ; x = _____

$\overline{QR}$ = _____ ; $\overline{RS}$ = _____ ; $\overline{ST}$ = _____

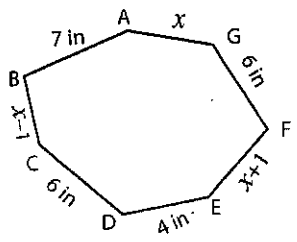
8)



Perimeter = 39 m ; x = _____

$\overline{CD}$ = _____ ; $\overline{FG}$ = _____ ; $\overline{HI}$ = _____

9)



Perimeter = 35 in ; x = _____

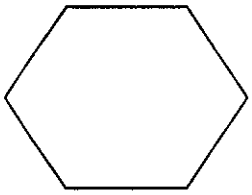
$\overline{BC}$ = _____ ; $\overline{EF}$ = _____ ; $\overline{AG}$ = _____

Name : _____ Score : _____

MS3

Sum of Interior Angles

Example:



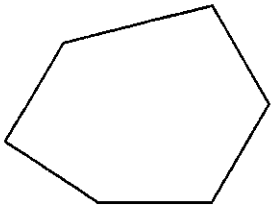
Sum of the interior angles = (Number of sides - 2) x 180^0

= (6 - 2) x 180^0

= 4 * 180^0 = **720^0**

Find the sum of interior angles for each polygon.

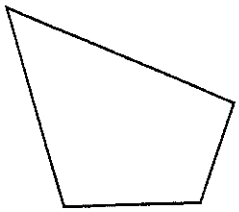
1)



Number of sides = _____

Sum of the interior angles = _____

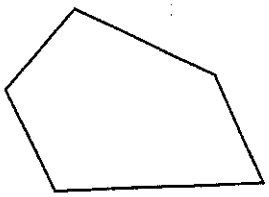
2)



Number of sides = _____

Sum of the interior angles = _____

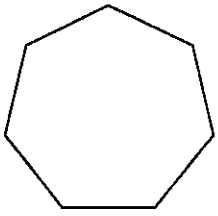
3)



Number of sides = _____

Sum of the interior angles = _____

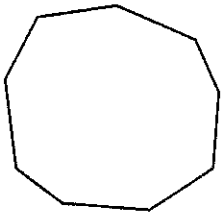
4)



Number of sides = _____

Sum of the interior angles = _____

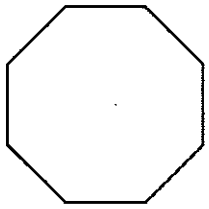
5)



Number of sides = _____

Sum of the interior angles = _____

6)



Number of sides = _____

Sum of the interior angles = _____

7) regular 11-gon

Number of sides = _____

Sum of the interior angles = _____

8) regular 16-gon

Number of sides = _____

Sum of the interior angles = _____

9) regular 19-gon

Number of sides = _____

Sum of the interior angles = _____

10) regular 18-gon

Number of sides = _____

Sum of the interior angles = _____

11) regular 14-gon

Number of sides = _____

Sum of the interior angles = _____

12) regular 12-gon

Number of sides = _____

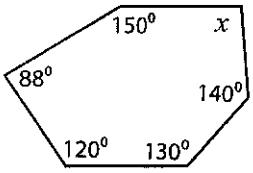
Sum of the interior angles = _____

Name : _____ Score : _____

Interior Angle

Sheet 2

Example:



Sum of the interior angles = (Number of sides - 2) x 180°

= (6 - 2) x 180°

= 4 x 180 = **720°**

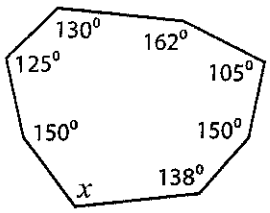
Sum of the interior angles = $120^0 + 140^0 + 130^0 + 150^0 + 88^0 + x$

$\mathbf{720^0} = 628^0 + x$

$x = \mathbf{720^0} - 628^0 = \mathbf{92^0}$

Find the interior angle for each irregular polygon.

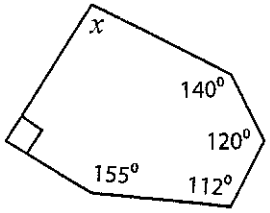
1)



Sum of the interior angles = ____

x = ____

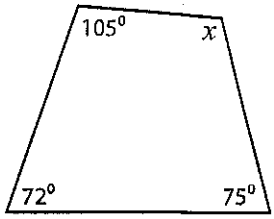
2)



Sum of the interior angles = ____

x = ____

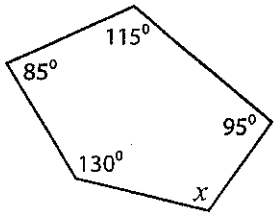
3)



Sum of the interior angles = ____

x = ____

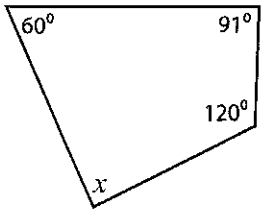
4)



Sum of the interior angles = ____

x = ____

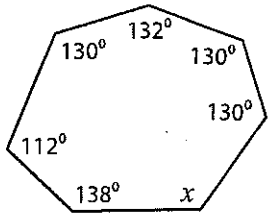
5)



Sum of the interior angles = ____

x = ____

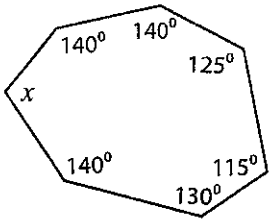
6)



Sum of the interior angles = ____

x = ____

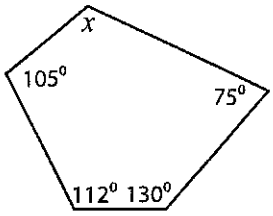
7)



Sum of the interior angles = ____

x = ____

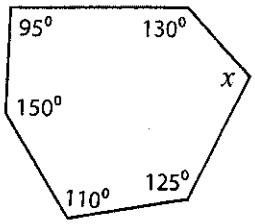
8)



Sum of the interior angles = ____

x = ____

9)



Sum of the interior angles = ____

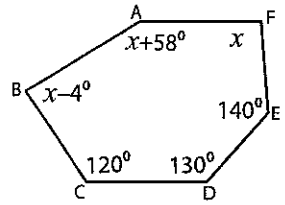
x = ____

Name : _____ Score : _____

Angles in Polygon

Sheet 1

Example:



Sum of the interior angles = (Number of sides – 2) x 180°
= (6 – 2) x 180°
= 4 x 180 = **720°**

Sum of the interior angles = $120^\circ + 140^\circ + 130^\circ + x+58^\circ + x - 4^\circ + x$

$\mathbf{720^\circ} = 444^\circ + 3x$

$3x = \mathbf{720^\circ} - 444^\circ = 276^\circ$

$x = \frac{276^\circ}{3} = \mathbf{92^\circ}$

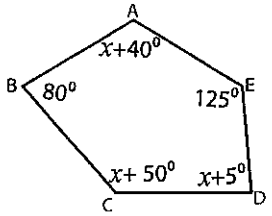
$\angle A = x+58^\circ = \mathbf{92^\circ} + 58^\circ = \mathbf{150^\circ}$

$\angle B = x-4^\circ = \mathbf{92^\circ} - 4^\circ = \mathbf{88^\circ}$

$\angle F = x = \mathbf{92^\circ}$

Find the missing angle for each irregular polygon.

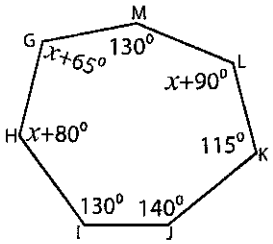
1)



Sum of the interior angles = _____

x = ____ ;∠A = ____ ;∠C = ____ ;∠D = ____

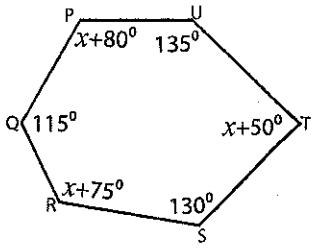
2)



Sum of the interior angles = _____

x = ____ ;∠G = ____ ;∠H = ____ ;∠L = ____

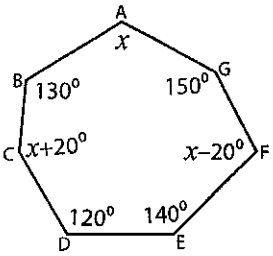
3)



Sum of the interior angles = _____

x = ____ ;∠P = ____ ;∠R = ____ ;∠T = ____

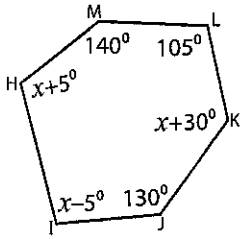
4)



Sum of the interior angles = _____

x = ____ ;∠A = ____ ;∠C = ____ ;∠F = ____

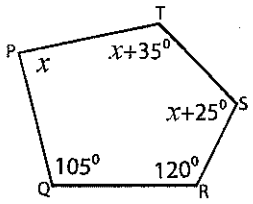
5)



Sum of the interior angles = _____

x = ____ ;∠H = ____ ;∠I = ____ ;∠K = ____

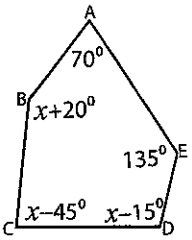
6)



Sum of the interior angles = _____

x = ____ ;∠P = ____ ;∠S = ____ ;∠T = ____

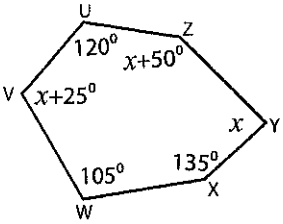
7)



Sum of the interior angles = _____

x = ____ ;∠B = ____ ;∠C = ____ ;∠D = ____

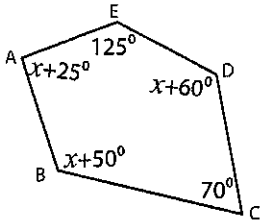
8)



Sum of the interior angles = _____

x = ____ ;∠V = ____ ;∠Y = ____ ;∠Z = ____

9)



Sum of the interior angles = _____

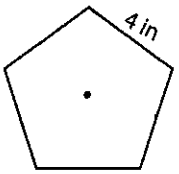
x = ____ ;∠A = ____ ;∠B = ____ ;∠D = ____

Name : _____ Score : _____

Polygon - Apothem

Sheet 2

Example:



Perimeter = number of sides × side length

$= 5 \times 4 =$ **20 in**

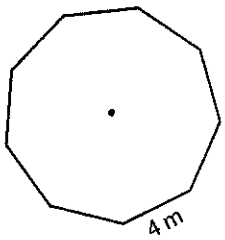
Area = 27.5 in^2

$\text{Apothem} = \frac{2 \times \text{area}}{\text{perimeter}}$

$= \frac{2 \times 27.5}{20} =$ **2.75 in**

Find the perimeter and apothem of each polygon.

1)

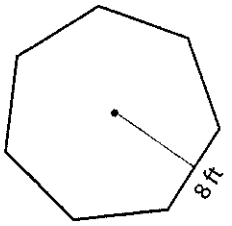


Area = 98.82 m^2

Perimeter = _____

Apothem = _____

2)

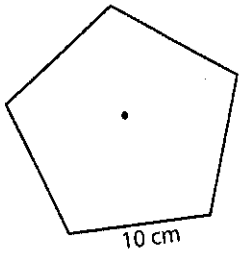


Area = 232.68 ft^2

Perimeter = _____

Apothem = _____

3)

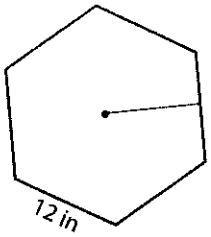


Area = 172 cm^2

Perimeter = _____

Apothem = _____

4)

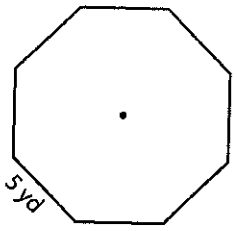


Area = 374.04 in^2

Perimeter = _____

Apothem = _____

5)

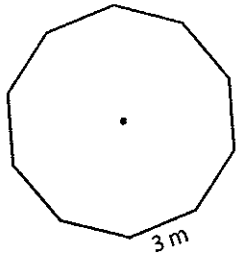


Area = 120.8 yd^2

Perimeter = _____

Apothem = _____

6)

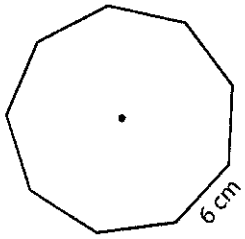


Area = 69.3 m^2

Perimeter = _____

Apothem = _____

7)

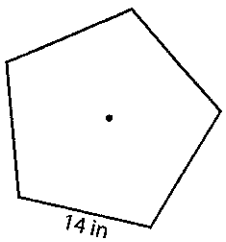


Area = 222.48 cm^2

Perimeter = _____

Apothem = _____

8)

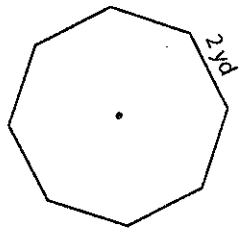


Area = 337.05 in^2

Perimeter = _____

Apothem = _____

9)



Area = 19.28 yd^2

Perimeter = _____

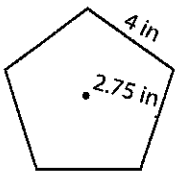
Apothem = _____

Name : _____ Score : _____

MS3

Polygon - Area & Perimeter

Example:



Perimeter = number of sides × side length

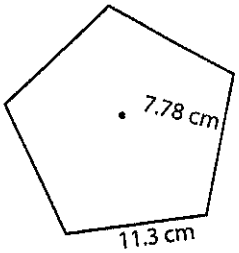
$= 5 \times 4 =$ **20 in**

Area = $\frac{1}{2}$ × apothem × perimeter

$= \frac{1}{2} \times 2.75 \times 20 =$ **27.5 in²**

Find the perimeter and area of each polygon. Round the answer to two decimal places.

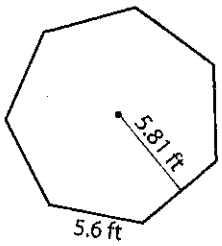
1)



Perimeter = _____

Area = _____

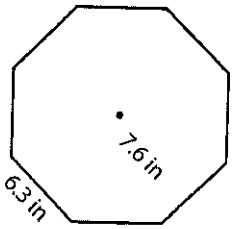
2)



Perimeter = _____

Area = _____

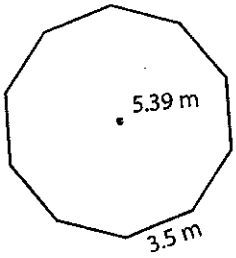
3)



Perimeter = _____

Area = _____

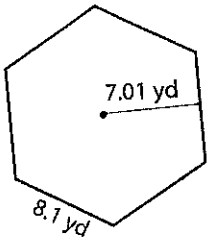
4)



Perimeter = _____

Area = _____

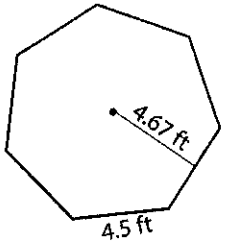
5)



Perimeter = _____

Area = _____

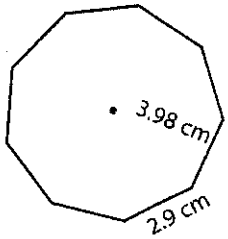
6)



Perimeter = _____

Area = _____

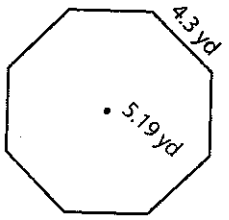
7)



Perimeter = _____

Area = _____

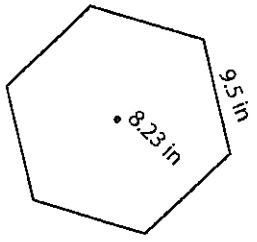
8)



Perimeter = _____

Area = _____

9)



Perimeter = _____

Area = _____