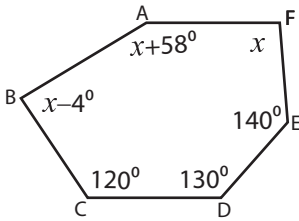


Angles in Polygon

Example:



$$\begin{aligned} \text{Sum of the interior angles} &= (\text{Number of sides} - 2) \times 180^\circ \\ &= (6 - 2) \times 180^\circ \\ &= 4 \times 180 = \mathbf{720^\circ} \end{aligned}$$

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

$$720^\circ = 444^\circ + 3x$$

$$3x = 720^\circ - 444^\circ = 276^\circ$$

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

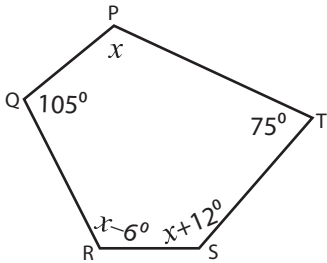
$$\angle A = x + 58^\circ = \mathbf{92^\circ} + 58^\circ = \mathbf{150^\circ}$$

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

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

Find the missing angle for each irregular polygon.

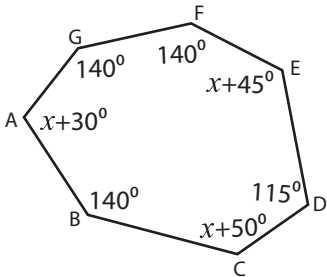
1)



Sum of the interior angles = _____

$x =$ _____ ; $\angle P =$ _____ ; $\angle R =$ _____ ; $\angle S =$ _____

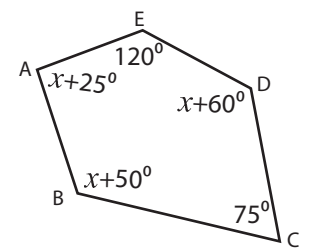
4)



Sum of the interior angles = _____

$x =$ _____ ; $\angle A =$ _____ ; $\angle C =$ _____ ; $\angle E =$ _____

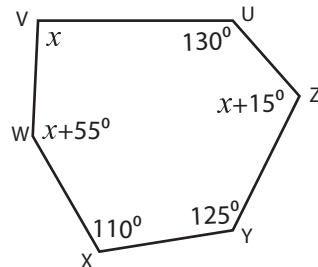
7)



Sum of the interior angles = _____

$x =$ _____ ; $\angle A =$ _____ ; $\angle B =$ _____ ; $\angle D =$ _____

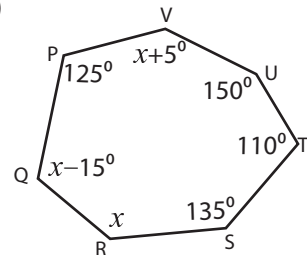
8)



Sum of the interior angles = _____

$x =$ _____ ; $\angle V =$ _____ ; $\angle W =$ _____ ; $\angle Z =$ _____

9)



Sum of the interior angles = _____

$x =$ _____ ; $\angle Q =$ _____ ; $\angle R =$ _____ ; $\angle V =$ _____

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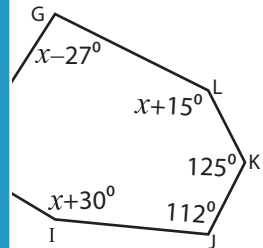
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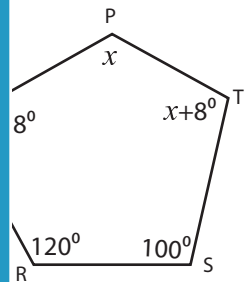
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Sum of the interior angles = _____

$\angle G =$ _____ ; $\angle I =$ _____ ; $\angle L =$ _____



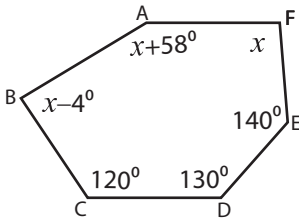
Sum of the interior angles = _____

$\angle P =$ _____ ; $\angle Q =$ _____ ; $\angle T =$ _____

Answer key

Angles in Polygon

Example:



$$\begin{aligned} \text{Sum of the interior angles} &= (\text{Number of sides} - 2) \times 180^\circ \\ &= (6 - 2) \times 180^\circ \\ &= 4 \times 180 = \mathbf{720^\circ} \end{aligned}$$

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

$$720^\circ = 444^\circ + 3x$$

$$3x = 720^\circ - 444^\circ = 276^\circ$$

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

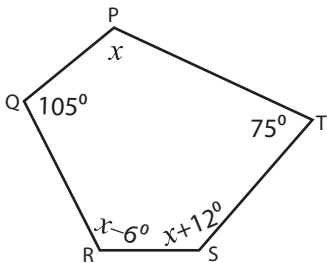
$$\angle A = x + 58^\circ = \mathbf{92^\circ} + 58^\circ = \mathbf{150^\circ}$$

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

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

Find the missing angle for each irregular polygon.

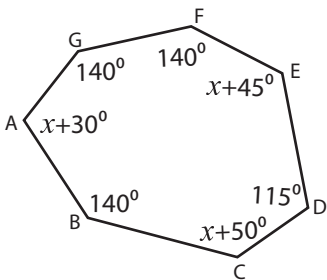
1)



Sum of the interior angles = 540

$x = \mathbf{118^\circ}$; $\angle P = \mathbf{118^\circ}$; $\angle R = \mathbf{112^\circ}$; $\angle S = \mathbf{128^\circ}$

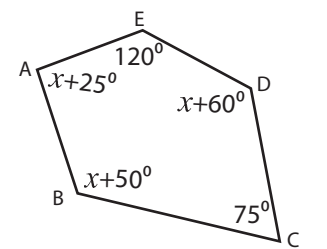
4)



Sum of the interior angles = 900

$x = \mathbf{80^\circ}$; $\angle A = \mathbf{110^\circ}$; $\angle C = \mathbf{130^\circ}$; $\angle E = \mathbf{125^\circ}$

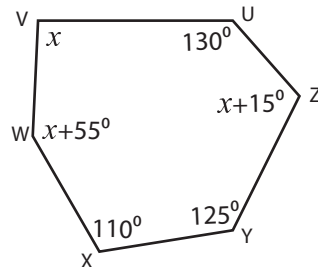
7)



Sum of the interior angles = 540

$x = \mathbf{70^\circ}$; $\angle A = \mathbf{95^\circ}$; $\angle B = \mathbf{120^\circ}$; $\angle D = \mathbf{130^\circ}$

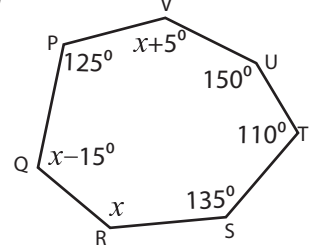
8)



Sum of the interior angles = 720

$x = \mathbf{95^\circ}$; $\angle V = \mathbf{95^\circ}$; $\angle W = \mathbf{150^\circ}$; $\angle Z = \mathbf{110^\circ}$

9)



Sum of the interior angles = 900

$x = \mathbf{130^\circ}$; $\angle Q = \mathbf{115^\circ}$; $\angle R = \mathbf{130^\circ}$; $\angle V = \mathbf{135^\circ}$

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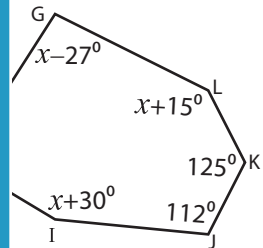
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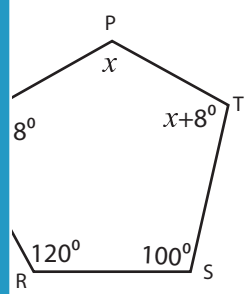
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Sum of the interior angles = 720

$x = \mathbf{98^\circ}$; $\angle G = \mathbf{98^\circ}$; $\angle I = \mathbf{155^\circ}$; $\angle L = \mathbf{140^\circ}$



Sum of the interior angles = 540

$x = \mathbf{92^\circ}$; $\angle P = \mathbf{110^\circ}$; $\angle Q = \mathbf{92^\circ}$; $\angle T = \mathbf{118^\circ}$