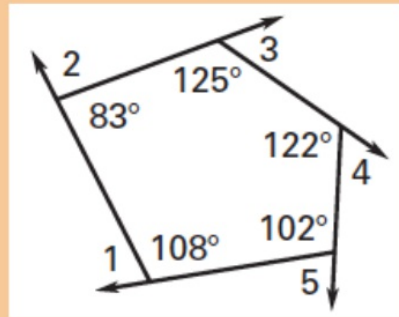**Example 3** **Finding the Measure of an Exterior Angle**

Find $m\angle 1$ in the diagram.

An interior angle and an exterior angle at the same vertex form a straight angle.



$$m\angle 1 + 108° = 180°$$
$$\underline{-108 \quad -108}$$
$$m\angle 1 = 72°$$

**3.** In Example 3, find $m\angle 2$, $m\angle 3$, $m\angle 4$, and $m\angle 5$.

$m<1 = 72°$

$m<2 = 97°$

$m<3 = 55°$

$m<4 = 58°$

$m<5 = 78°$
_____
$360°$

$m<2 + 83 = 180$

$\quad - 83 - 83$
_____
$\qquad 97$

$m<3 + 125 = 180$

$\quad -125 - 125$
_____
$\qquad m<3 - 55$

$m<4 + 122 = 180$

$\quad -122 - 122$
_____
$\qquad 58°$

$m<5 + 102 = 180$

$\quad -102 - 102$
_____
$\qquad 78$

[Figure: polygon with angles labeled 2, 3, 4, 5, 1 and interior/exterior angles 83°, 125°, 122°, 102°, 108°]
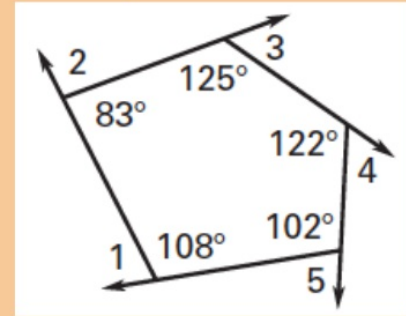
**Example 4**   *Using the Sum of Measures of Exterior Angles*

Find the unknown angle measure in the diagram.
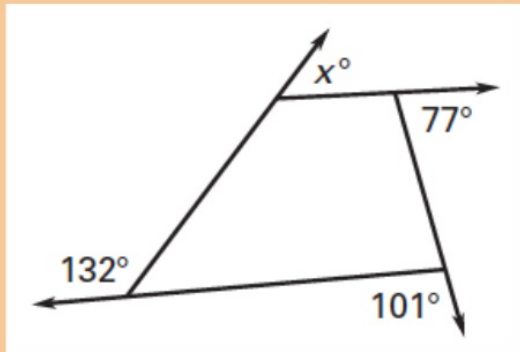


Each vertex of a convex polygon has two exterior angles. If you draw one exterior angle at each vertex, then the sum of the measures of these angles is 360°.

$x° + 77° + 101° + 132° =$ 360

$$X + 310 = 360$$
$$- 310 \quad -310$$
$$X = 50°$$

**4.** Five exterior angles of a convex hexagon have measures 42°, 78°, 60°, 55°, and 62°. Find the measure of the sixth exterior angle.

$$X + 42 + 78 + 60 + 55 + 62 = 360$$

$$X + 297 = 360$$

$$-297 \quad -297$$

$$X = 63°$$