

5 TAKS PREPARATION



TAKS Obj. 6
TEKS G.5.A
TAKS Obj. 8
TEKS G.8.A

REVIEWING PROPERTIES OF POLYGONS

To solve math problems involving polygons, you need to be familiar with the properties of polygons.

Properties of Polygons

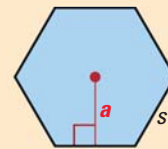
Interior Angles of a Polygon

The sum of the measures of the interior angles of a convex n -gon is $(n - 2) \cdot 180^\circ$.

Area of a Regular Polygon

The area A of a regular n -gon with side length s is half the product of the apothem a and the

perimeter P . So, $A = \frac{1}{2}aP$, or $A = \frac{1}{2}a \cdot ns$.

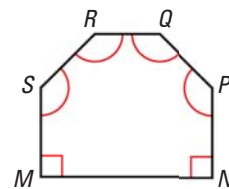


EXAMPLE

Suzanne wants to use a hexagonal design for a new school store sign. Two of the interior angles of the hexagon are right angles. The remaining four interior angles are congruent. What is the measure of each of these four congruent angles?

Solution

STEP 1 Draw and label a diagram of the sign. The two right angles are $\angle M$ and $\angle N$. The remaining four angles ($\angle S$, $\angle R$, $\angle Q$, and $\angle P$) are congruent.



STEP 2 Write an equation for this situation. The sum of the measures of the interior angles of a hexagon is $(6 - 2) \cdot 180^\circ = 720^\circ$.

Sum of interior angle measures	= 2 ·	Measure of each right angle	+ 4 ·	Measure of each remaining angle
720	= 2 ·	90	+ 4 ·	x

An equation for this situation is $720 = 180 + 4x$.

STEP 3 Solve for x .

$$720 = 180 + 4x \quad \text{Write equation.}$$

$$540 = 4x \quad \text{Subtract 180 from each side.}$$

$$135 = x \quad \text{Divide each side by 4.}$$

► The measure of each of the four congruent angles is 135° .