Name _____ Date _____ Class _____

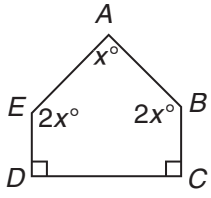
SKILL 28

Skills Readiness

Angles in Polygons

Polygon Angle Measures				
Polygon	Triangle	Quadrilateral	Pentagon	General Polygon
Number of Sides	3	4	5	n
Sum of Interior Angles	180°	360°	540°	$180(n - 2)$
Sum of Exterior Angles	360°	360°	360°	360
Regular Polygons (all sides and angles are congruent)				
Each Interior Angle	$\frac{180}{3} = 60°$	$\frac{360}{4} = 90°$	$\frac{540}{5} = 108°$	$\frac{180(n-2)}{n}$
Each Exterior Angle	$\frac{360}{3} = 120°$	$\frac{360}{4} = 90°$	$\frac{360}{5} = 72°$	$\frac{360}{n}$

Example: Find the value of x in pentagon $ABCDE$.

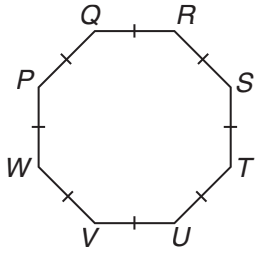


Answer: Since the polygon is a pentagon, the sum of the interior angles is 540°. Two of the angles are right angles (90° each) so the remaining three angles have a sum of $540 - 2(90) = 540 - 180 = 360$. With respect to x, the sum of the remaining three angles is $x + 2x + 2x = 5x$.

Solve $5x = 360$ by dividing both sides of the equation by 5: $\frac{5x}{5} = \frac{360}{5}$; $x = 72$.

Practice on Your Own

Find the indicated angle measure(s).



1. the sum of the interior angle measures of $PQRSTUVW$ _____

2. the measure of each interior angle of $PQRSTUVW$ _____

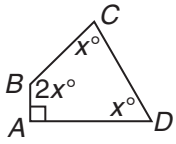
3. the sum of the exterior angle measures of $PQRSTUVW$ _____

4. the measure of each exterior angle of $PQRSTUVW$ _____

5. the measure of each interior angle of a regular polygon that has 7 sides _____

6. the measure of each exterior angle of a regular polygon that has 7 sides _____

7. the value of x in quadrilateral $ABCD$ _____



Check

Find the indicated angle measure(s).

8. the sum of the interior angle measures of regular hexagon $JKLMNO$ _____

9. the measure of each interior angle of regular hexagon $JKLMNO$ _____

10. the sum of the exterior angle measures of regular hexagon $JKLMNO$ _____

11. the measure of each exterior angle of regular hexagon $JKLMNO$ _____