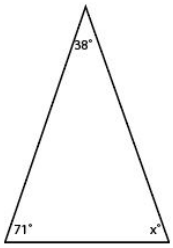
*This practice plan was created by **Taren Long**, a math teacher and coach at Chesapeake Public Charter School. Taren created numerous free resources for MATHCOUNTS coaches in her role as the 2020-2021 DoD STEM Ambassador for MATHCOUNTS. Find more resources and information at **dodstem.us**.*

Interior Angles of Polygons

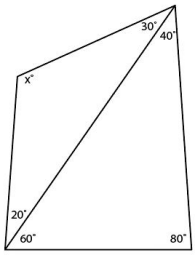
Warm-Up!

Try these problems before watching the lesson.

1. The sum of the interior angles of a triangle is 180°. Solve for the missing angle in the figure at right.



2. What is the measure of the missing angle shown at right?



3. What is the sum of the interior angles in a quadrilateral?

4. What is the sum of the interior angles in a pentagon?

5. If all of the interior angles of a polygon are congruent, the polygon is called a regular polygon. What is the measure of each interior angle of a regular pentagon?

The Problems

Take a look at the following problems and follow along as they are explained in the video.

6. If an isosceles triangle has base angles that are each twice the measure of the smaller angle, what is the measure of one of the base angles?

7. What is the measure of the sum of the internal angles of a regular dodecagon (12-sided polygon)? What is the measure of each interior angle of the regular dodecagon?

8. If the measure of an interior angle of a regular polygon is 170°, how many sides does the polygon have?

Piece It Together

Use the skills you practiced in the warm-up and strategies from the video to solve the following problems.

9. In the parallelogram PQRS, angle P is equal to four times angle Q. How many degrees are in the measure of angle P?

10. By how many degrees does the measure of an interior angle of a regular decagon exceed the measure of an interior angle of a regular pentagon?

11. If the measure of an interior angle of a regular polygon is 162°, and this polygon is the base of a prism, how many edges does the prism have?

Optional Extension

To extend your understanding and have a little fun with math, try the following activity.

Materials

- Pencil
- Piece of rectangular paper

How can you make an angle of 60 degrees by folding a rectangular sheet of paper twice? Can you make an equilateral triangle with one more fold?