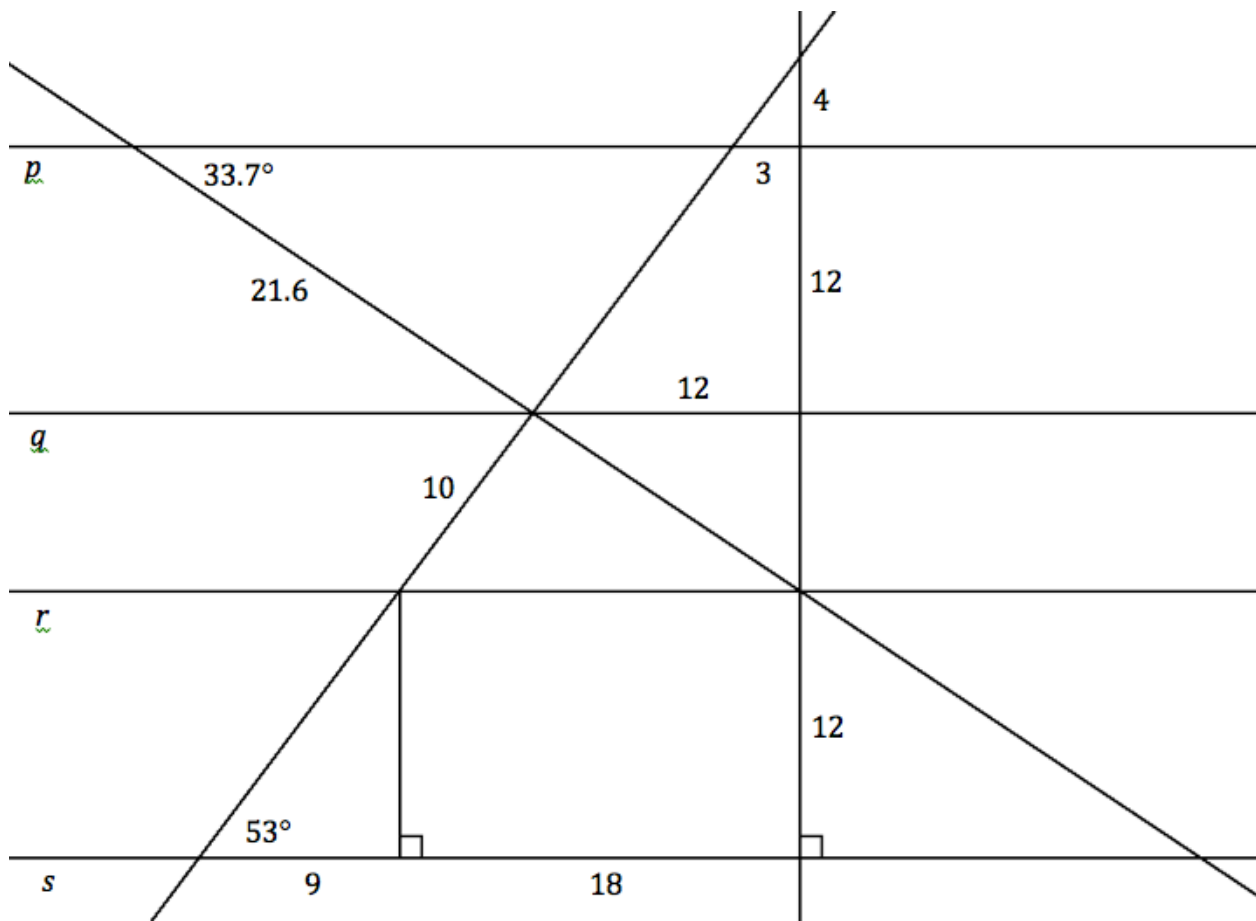# 6.5 Measured Reasoning
A Practice Understanding Task

Find the measures of all missing sides and angles by using geometric reasoning, not rulers and protractors. If you think a measurement is impossible to find, identify what information you are missing.

Lines *p*, *q*, *r*, and *s* are all parallel.

1. Identify at least three different quadrilaterals in the diagram. Find the sum of the interior angles for each quadrilateral. Make a conjecture about the sum of the interior angles of a quadrilateral.

   Conjecture:

2. Identify at least three different pentagons in the diagram. (Hint: The pentagons do not need to be convex.) Find the sum of the interior angles for each pentagon. Make a conjecture about the sum of the interior angles of a pentagon.

   Conjecture:

3. Do you see a pattern in the sum of the angles of a polygon as the number of sides increases? How can you describe this pattern symbolically?

4. How can you convince yourself that this pattern holds for all n-gons?

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