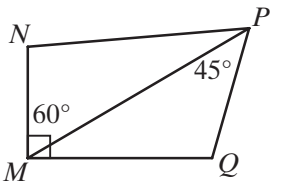
Name _____ Class _____ Date _____

7-5 • Guided Problem Solving

Proving Triangles Similar

GPS Student Page 235, Exercise 13:

City workers are laying out the paths in a new park, as shown in the diagram. Do the workers have enough information to determine $m\angle Q$? If so, explain how to find its measure. If not, explain why not.



Understand

1. What are you being asked to find?

_____

2. What is the angle measure of a right angle?

_____

3. How many pairs of corresponding angles must be congruent in order for two triangles to be similar?

_____

Plan and Carry Out

4. What angle measures does the diagram provide?
$\angle NMQ =$ _____ $\angle NMP =$ _____ $\angle MPQ =$ _____

5. Based on the angle measures shown in the diagram, you can find $m\angle PMQ$. $\angle PMQ = \angle NMQ - \angle NMP =$ _____

6. Now that you know the measure of two angles in $\triangle MQP$, use angle sum of a triangle to find $\angle Q$. $180° - (\angle PMQ + \angle MPQ) = \angle Q =$ _____

7. Is $\triangle MQP \sim \triangle PNM$? How do you know?

_____

_____

Check

8. Given the angle measure you found for $\angle Q$, what is the angle sum of $\triangle MQP$? Show each angle measure _____

Solve Another Problem

9. For part of a theater set, students are supposed to build two similar triangular wood frames. The first frame has the following side/angle/side measure: 20 cm/80°/24 cm. The second frame has a different side-angle-side measures: 15 cm/80°/18 cm. Are the frames similar triangles? Explain.

_____

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