Lesson 10: Conditions for a Unique Triangle—Two Angles and a Given Side

Classwork

Exploratory Challenge

1. A triangle has angles and and included side cm. Draw triangle under the same condition as . Leave all construction marks as evidence of your work, and label all side and angle measurements.

Under what condition is drawn? Compare the triangle you drew to two of your peers’ triangles. Are the triangles identical? Did the condition determine a unique triangle? Use your construction to explain why.

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Problem Set

1. In triangle , and . Side cm. Draw triangle under the same condition as . Leave all construction marks as evidence of your work, and label all side and angle measurements. What can be concluded about and ? Justify your response.
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3. ,, and are collinear, and . What can be concluded about and ? Justify your answer.
4. Draw so that has a measurement of , has a measurement of , and has a length of cm. What are the lengths of the other sides?
5. Draw so that has a measurement of , has a measurement of , and has a length of cm. What is the length of the longest side?