4.2 Building Quadrilaterals

You need four side lengths to make a quadrilateral.

Will any four side lengths work?

Can you make more than one quadrilateral from four side lengths?

Problem 4.2 Building Quadrilaterals

A. 1. Use polystrips to build quadrilaterals with each of the following sets of numbers as side lengths. Try to build two or more different quadrilaterals using the same set of side lengths.

6, 10, 15, 15 3, 5, 10, 20

8, 8, 10, 10 12, 20, 6, 9

Sketch and label your results to share with your classmates. Record any observations you make.

2. Choose your own sets of four numbers and try to build quadrilaterals with those numbers as side lengths.

B. Use your observations from Question A.

1. Is it possible to make a quadrilateral using any four side lengths? If not, how can you tell whether you can make a quadrilateral from four side lengths?

2. Can you make two or more different quadrilaterals from the same four side lengths?

3. What combinations of side lengths are needed to build rectangles? Squares? Parallelograms?

C. 1. Use four polystrips to build a quadrilateral. Press on the sides or corners of your quadrilateral. What happens?

2. Use another polystrip to add a diagonal connecting a pair of opposite vertices. Now, press on the sides or corners of the quadrilateral. What happens? Explain.

D. 1. Describe the similarities and differences between what you learned about building triangles in Problem 4.1 and building quadrilaterals in this problem.

2. Explain why triangles are used in building structures more often than quadrilaterals.

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