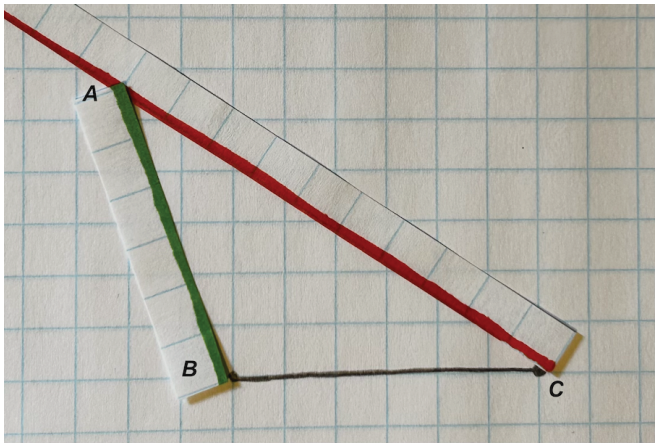
Unit 1, Lesson 1

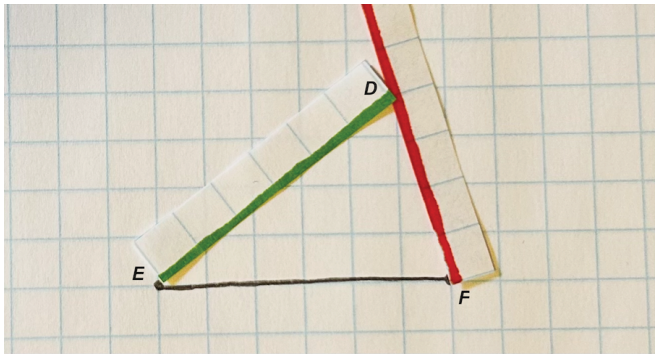
What's Up, Triangle?

Let's make observations about triangles.

1.1 Notice and Wonder: Triangles

What do you notice? What do you wonder?





1.2 More Triangles

Let's investigate triangles.

1. Record the length of your short grid strip as the length of segment AC. Then choose a number between 4 and 10 to record as the length of segment BC. The values you choose for AC and BC can be the same, but no one in your group should have the same values as you do for AC and BC. Once you have chosen your value for BC, draw that length on your graph paper.
   a. AC =
   b. BC =
2. Use your long grid strip to measure different possible lengths for AB so that AB and your fixed lengths make a triangle. Include at least one of each of the following, recording your findings below.
   a. obtuse triangle
   b. acute triangle
   c. right triangle

length AC	length BC	length AB

3. Compare your list of side lengths with those of your group. What observations can you make about the length of AB?

Are you ready for more?

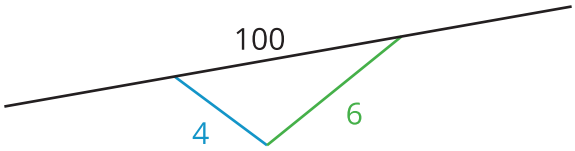
In this activity the lengths of BC and AC were fixed, and you explored some possible lengths of AB. Now imagine if the points B and C remain fixed where they are, so the length of BC doesn't change. Is it possible to find a location for point A that is a lattice point (a point where the grid lines on the graph meet) and that makes the lengths of both AB and AC integers? If it is possible, list some possible side lengths.

1.3 Is It a Triangle?

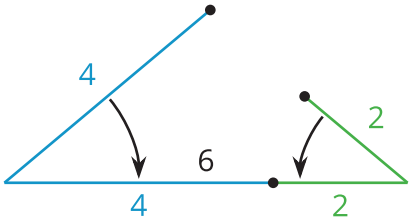
1. Use the available tools to figure out if each set of three side lengths could make a triangle.
   a. 4, 6, 7
   b. 4, 6, 100
   c. 4, 6, 6
   d. 4, 6, 10
   e. 4, 6, 0.5
   f. 4, 6, 2
2. A triangle has two sides that measure 7 and 12.
   a. What is a length for the third side that is too long?
   b. What is a length for the third side that is too short?
   c. What is a length for the third side that would create a triangle?

Lesson 1 Summary

Triangles are made up of three sides, but can those side lengths be any values? Can a triangle have side lengths 4, 6, and 100 units? No, because 4 and 6 aren't long enough to reach the endpoints of a side with 100 as a length.



Another example is 4, 6, and 2 units. To meet at the endpoints, lengths 4, 6 and 2 would form a line segment.



But the side lengths 4, 6, and 8 units will form a triangle.

