Extend 9-5

Geometry Lab
Slope Triangles

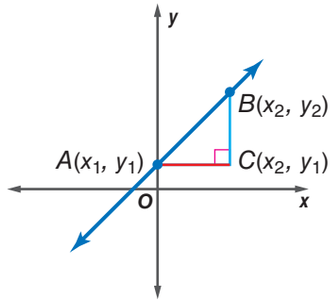
MAIN IDEA

Graph and analyze slope triangles.

New Vocabulary

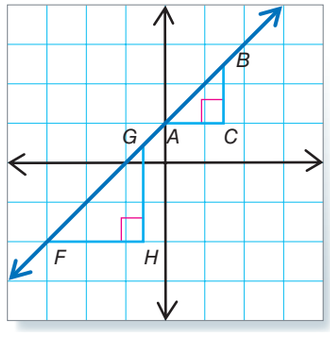
slope triangle

Refer to the graph at the right. Triangle ABC is formed by the rise, run, and section of the line between points A and B. If $A(x_1, y_1)$ and $B(x_2, y_2)$, such that $x_1 < x_2$, are two points on a line, then the right triangle ABC is called the **slope triangle** for the line. In this lab, you will investigate the relationship among slope triangles.



ACTIVITY

STEP 1 Graph $y = x + 1$ on a sheet of grid paper. Make the graph as large as possible. Draw and label two slope triangles anywhere along the line as shown.



STEP 2 Use a protractor to measure the angles of each triangle.

STEP 3 Use a ruler to measure the side lengths.

Analyze the Results

1. What do you notice about the measures of the corresponding angles?
2. Are the corresponding sides of $\triangle ABC$ and $\triangle FGH$ proportional? Explain.
3. What can you conclude about $\triangle ABC$ and $\triangle FGH$? Explain.
4. Draw another slope triangle on the same line. Compare this triangle with $\triangle ABC$ and $\triangle FGH$. What can you conclude?
5. Repeat the activity above and Exercises 1–4 using several other linear equations.
6. **MAKE A CONJECTURE** Based on this activity, what can you conclude about all slope triangles on a given line?
7. **WRITING IN MATH** Find the slopes of each slope triangle. How are these slopes related to the slope of each line?