Perpendicular Lines

Team members:

Goals: Discovering the relationship between the slopes of two perpendicular lines, finding the equation of the perpendicular line and observing the geometric relationship between perpendicular lines by sketching and using the graphing calculator.

Activity:
1. Sketch the graph of the equation \( 2x - y + 1 = 0 \).

2. Find the slope of the line in #1.

3. Find the slope of the line perpendicular to the line in #1.

4. Find the equation of the line perpendicular to the line in #1 which passes through the point \( P(4,3) \).

5. Express the equation of the perpendicular line in slope-intercept form.
6. What conclusion can you draw from steps #3 and #5?

7. Sketch the perpendicular line on the graph given in #1.

8. What is the value of y on the perpendicular line when x = 4?

9. Graph the line given in #1 and the line perpendicular to that using your calculator.

10. Do the lines appear perpendicular?
   What is your conclusion?

11. What can be done to correct this?

12. Summarize what you have learned from this activity.