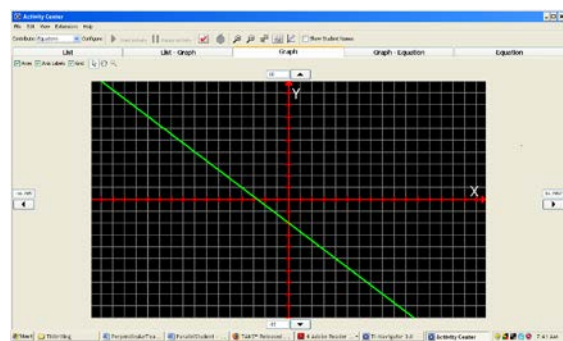


Perpendicular Lines Teacher Notes

This activity serves as an introduction to perpendicular lines. The teacher will submit a linear equation and students will submit equations to lines that are perpendicular to the teacher's. Students will analyze the equations submitted and write their own conclusions about the slopes of perpendicular lines.

Start TI-Navigator, begin class, and start Activity Center. Once Activity Center has started, load the file *PerpendicularPerpendicularSetting.act*.

Make sure that students cannot see the equation of the line and enter the equation: $y = (3/4)x - 2$, then show the graph to the students.



Student Handout Q1 & Q2:

Once students have logged in to Navnet and are in the Activity Center, have them answer *Question 1 and 2*. Give students 3-5 minutes to write their responses.

Student Handout: Q3

Student Handout: Q4

Start the Activity and ask students to graph a line that is perpendicular to your line. Students are allowed to resubmit as many times as they want. Allow student 2-3 minutes to graph a line. Have them write their equation down.

Student Handout: Q5 & Q6

Pause the activity and click on the Graph-Equation tab. Sort the equations. Ask students to analyze the equations of all the lines that are perpendicular to the teacher's equation and then answer *Question 5 & 6*.

STUDENT HANDOUT PG 1:

Perpendicular Lines Student Handout

In this activity you will use slopes and equations of lines to investigate the relationship of perpendicular lines.

Login to Navnet and go to the Activity Center and wait for further instructions from the teacher.



- 1. What do you know about the equation of the teacher's line? (discuss slope, y-intercept, x-intercept, one other characteristic of the line)*
- 2. What do you think is the equation of the teacher's line? How did you arrive at this equation?*
- 3. What are perpendicular lines?*
- 4. What equation did you submit that was perpendicular to the teacher's line?*
- 5. What do you notice about the equations of the lines that are perpendicular to the teacher's line? What do they have in common?*
- 6. Write your conjecture about equations of perpendicular lines.*

Perpendicular Lines Teacher Notes

After students have answered the 6 questions, have one student submit an equation and have the rest of the class submit an equation that will produce a line that is perpendicular to the student's. Repeat this a few times until you see that students are doing better at estimating the slope and getting to the right equation sooner. As students are doing this activity ask questions to make sure that they understand what the cause for the lines being perpendicular is.

This activity can be repeated using parallel lines instead of perpendicular lines. Use handout *ParallelStudent.doc* and *ParallelTeacher.doc*. The same settings page, *PerpendicularPerpendicularSettings.doc*, can be used.