

Finding Parallel and Perpendicular Lines

To get started, you will need to do the following:

- a) Open the eActivity application.
- b) Select **File** and then **Open**.
- c) Open the **Linear** folder by tapping ▶. (It will change to ▼.)
- d) Select the file named “**ParallelPerpenLines**”.
- e) Tap the Open button.
- f) Expand the Geometry window.

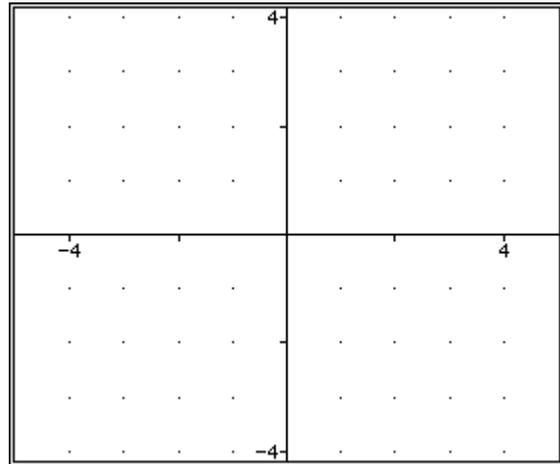
1. For Exercise 1, expand the Geometry window and then edit the second equation so that it is parallel to the first. Edit the second equation again to find another line parallel to the first.

Complete:

a. $y=3x-1$ is parallel to _____

b. $y=3x-1$ is parallel to _____

c. Sketch and label all three lines.



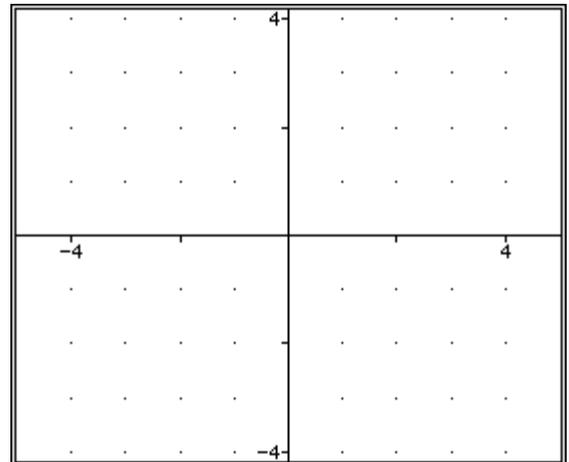
2. For exercise 2, expand the second Geometry window and then edit the second equation so that it is parallel to the first. Edit the second equation again to find another line parallel to the first.

Complete:

a. $y = -\frac{2}{3}x + 2$ is parallel to _____

b. $y = -\frac{2}{3}x + 2$ is parallel to _____

c. Sketch and label all three lines.

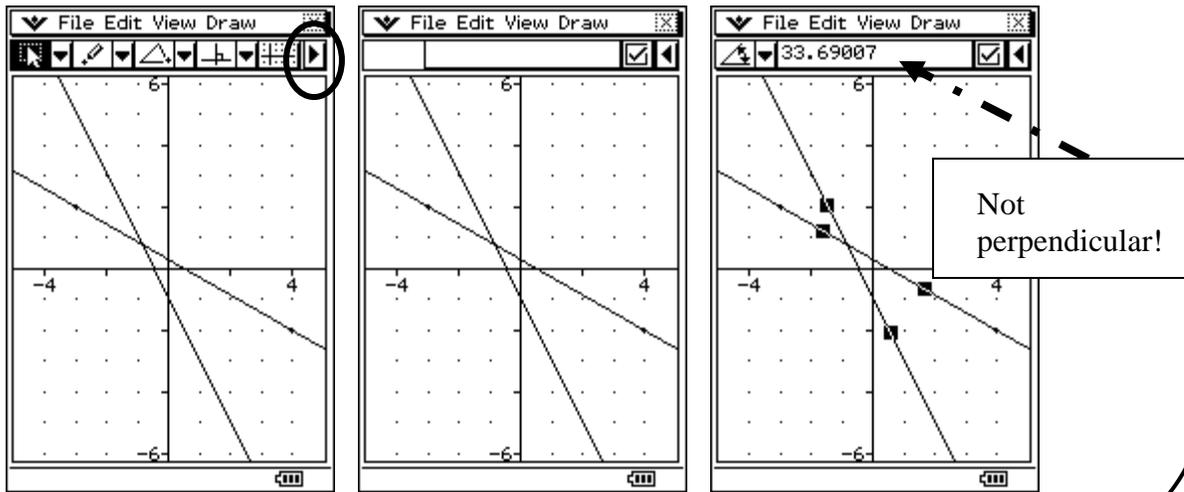


Important!!!

By definition, two lines are perpendicular if they meet at right angles (90°).

In #3 and #4 below, you can use the ClassPad to check to see if two lines perpendicular (meet at 90°) as follows:

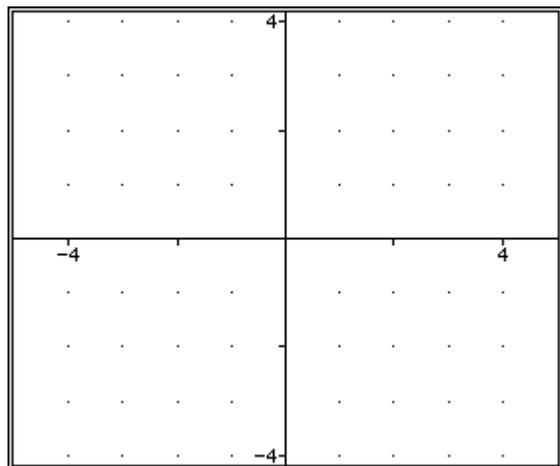
- a) Tap in Geometry to give it focus. Press  if you want to.
- b) Tap the  toolbar button in Geometry to see the Measurement Box.
- c) Tap each line to select both. Notice the angle between them shows in the Measurement Box.



3. Using Exercise 1 again, expand the Geometry window and then edit the second equation so that it is perpendicular to the first. Edit the second equation again to find another line perpendicular to the first.

Complete:

- a. $y=3x-1$ is perpendicular to _____
- b. $y=3x-1$ is perpendicular to _____
- c. Sketch and label all three lines.



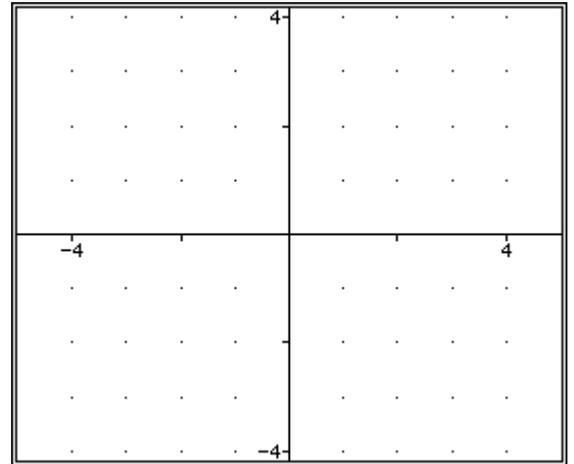
4. Using Exercise 2 again, expand the Geometry window and then edit the second equation so that it is perpendicular to the first. Edit the second equation again to find another line perpendicular to the first.

Complete:

a. $y = -\frac{2}{3}x + 2$ is perpendicular to _____

b. $y = -\frac{2}{3}x + 2$ is perpendicular to _____

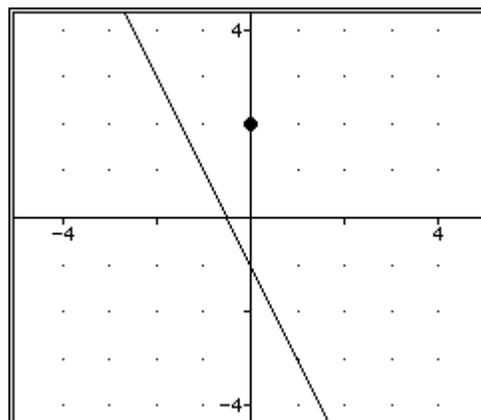
- c. Sketch and label all three lines.



5. Multiply the slopes of the perpendicular lines found in #3a above together.
6. Multiply the slopes of the perpendicular lines found in #4a above together.
7. In general, what does the product of the slopes of two perpendicular lines equal?
8. If the slope of a line is a/b , what is the slope of a line perpendicular to it?

For #9 and #10: You can check your answers by inputting the equations into eActivity and then dragging them to a Geometry window.

9. Given that a line passes through the point (0,2) and is parallel to $y = -2x - 1$, find the equation of the line. Graph and label both lines on the axes to the right.



10. Given that a line passes through the point (0,2) and is perpendicular to $y = -2x - 1$, find the equation of the line. Graph and label both lines on the axes to the below.

