

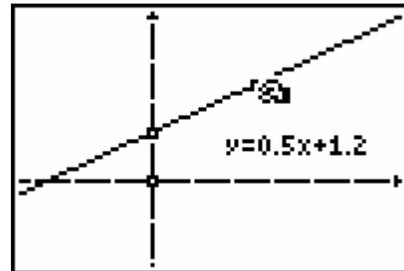


CABRI™ JR. ACTIVITY 25: INVESTIGATING EQUATIONS OF LINES

ACTIVITY OVERVIEW:

In this activity we will

- Draw a line and find its equation
- Move the points defining the line and observe the changes in the equation
- Draw another line and observe changes in its equation



Press **[APPS]**. Move down to the CabriJr APP and press **[ENTER]**. Press **[ENTER]**, or any key, to begin using the application.

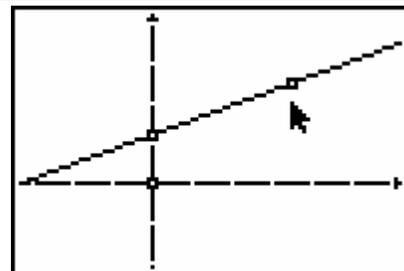
Press **[Y=]** for the F1 menu and select **New**. (If asked to **Save changes?** press **[←]** **[ENTER]** to choose “No.”)



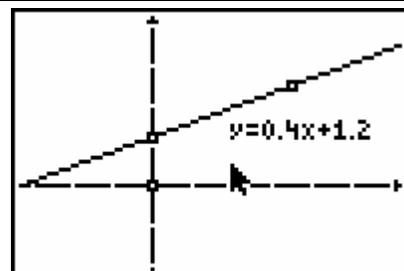
Press **[GRAPH]** for the F5 menu, move to **Hide/Show**, and then move right and down to **Axes**. Press **[ENTER]**.



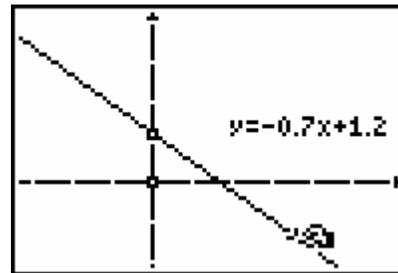
Press **[WINDOW]** for F2, move to **Line** and press **[ENTER]**. Move until the y-axis is flashing and press **[ENTER]** at some location on the axis to mark the y-intercept of the line. Move to the right and up and press **[ENTER]**. This marks the second point that defines the line.



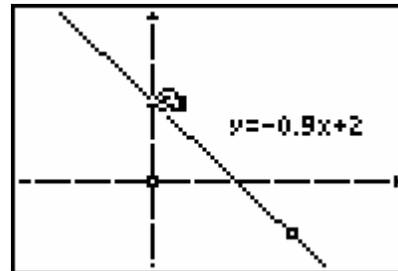
Press **[GRAPH]** for the F5 menu, move to **Coord. & Eq.** and press **[ENTER]**. Move until the line is flashing and press **[ENTER]**. The equation of the line is displayed and can be moved to a convenient location. Press **[CLEAR]** to deactivate the *hand*. Press **[CLEAR]** again to turn off the **Coord. & Eq.** tool.



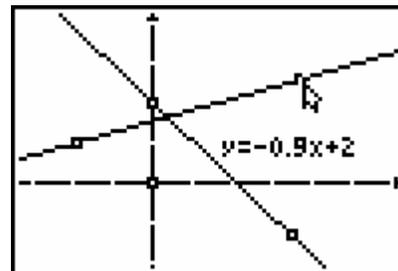
Move until the point (not on the y-axis) is flashing and press **[ALPHA]**. Move the point up and down and observe the changes in the equation of the line. The slope of the line changes as the point moves. The y-intercept stays constant since it was one of the two points used to define the line.



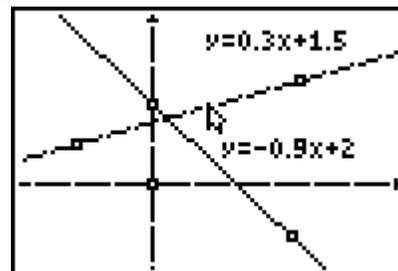
Press **[CLEAR]** and move until the y-intercept is flashing. Press **[ALPHA]** and move the point up and down on the axis. Observe that the y-intercept and the slope both change as the point is moved.



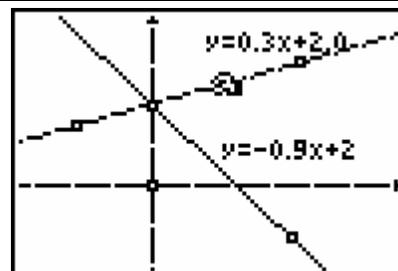
Draw another line using two more points, neither of which is the y-intercept of the new line. To do this press **[WINDOW]** for F2, move to **Line** and press **[ENTER]**. Move to a location in the second quadrant and press **[ENTER]**. Move to a location in the first quadrant and press **[ENTER]**. This marks the second point that defines the line.



To find the equation of the new line, press **[GRAPH]** for the F5 menu, move to **Coord. & Eq.** and press **[ENTER]**. Move until the new line is flashing and press **[ENTER]**. The equation of the line is displayed and can be moved to a convenient location. Press **[CLEAR]** to deactivate the *hand*. Press **[CLEAR]** again to turn off the **Coord. & Eq.** tool.



Move until the new line is flashing and press **[ALPHA]**. Unlike the first line, this entire new line can be moved up or down keeping the same slope since the y-intercept was not one of the defining points. You can also use the *hand* to move either of the points used to define the line. This will change the slope and the y-intercept.



To exit the APP, press **[Y=]** for the F1 menu. Move to **Quit**, then press **[ENTER]**. (Or you can press **[2nd]** **[MODE]** for **[QUIT]**.)

