

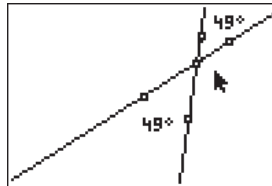
Approximate  
Total Time:  
20 minutes

# Intersecting Lines and Vertical Angles

## ACTIVITY OVERVIEW:

### In this activity we will

- Draw two intersecting lines
- Measure one pair of vertical angles
- Move a line to change the angles
- Observe the changes in the angle measures



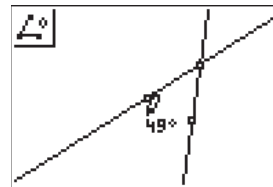
In this activity we are able to visualize and explore the angles that are formed when two lines intersect. By measuring the angles, we can enhance our understanding of *vertical angles*, *supplementary angles*, and a *linear pair*.

**NCTM Geometry Standard:** Analyze characteristics and properties of 2- and 3-dimensional geometric shapes and develop mathematical arguments about geometric relationships.



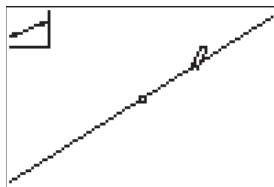
1

Press [APPS]. Move down to the Cabri Jr APP and press [ENTER]. Press [Y=] for the F1 menu and select **New**. (If asked to **Save changes?** press [NO] [ENTER] to choose "No.")



4

Use F5 to measure the angle formed by the 3 marked points. Move the angle measure to a convenient location and press [CLEAR] to deactivate the *hand*.



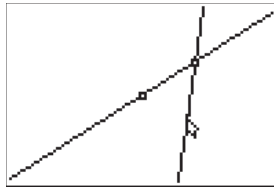
2

Press [WINDOW] for F2 and press [V] [ENTER] to select **Line**. Press [ENTER] to mark one point on the line. Move the pointer [←] and [→] several times and press [ENTER] to mark the other point defining the line.



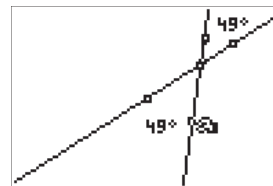
5

The **Angle Measure** tool is still active so now mark points forming the other vertical angle. You will first mark a point on one line, move to the intersection point, then mark a point on the second line. When the angle measure is displayed it can be moved to a convenient location. Press [CLEAR] to deactivate the *hand*.



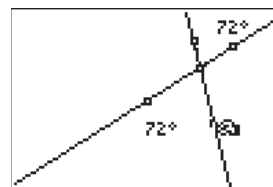
3

The **Line** tool is still active so press [ENTER] again to mark this point as one of the points that will determine another line. Press [V] to move away from that point and press [ENTER] to mark the other point on the new line. Press [CLEAR] to disable the **Line** tool.



6

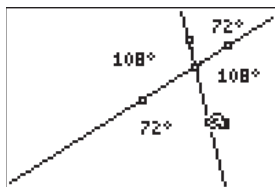
Move the pointer to one of the marked points which defined a line. Press [ALPHA] to grab the point.



7

Move the point left or right to change the angles formed. Observe that the measures of the vertical angles both change as the angle changes.

# Intersecting Lines and Vertical Angles



8

Extension: Measure the other angles formed by the intersecting lines. Which angles are congruent? Which angles are supplementary?



9

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