

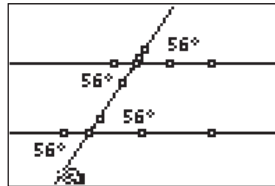
Approximate
Total Time:
30 minutes

Parallel Lines Cut By A Transversal

ACTIVITY OVERVIEW:

In this activity we will

- Draw parallel lines
- Draw a transversal
- Explore angle relationships



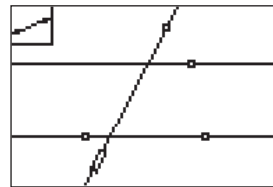
We can develop and strengthen our knowledge about the angles formed when parallel lines are cut by a transversal. The measurement tool helps us discover the relationships between and among the various angles in the figure.

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



1

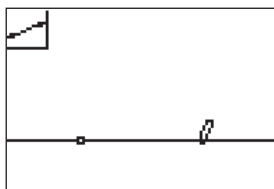
Press **[APPS]**. Move down to the Cabri Jr APP and press **[ENTER]**. Press **[ENTER]**, or any key, to begin using the application. Press **[Y=]** for the F1 menu and select **New**. (If asked to **Save changes?** press **[↓]** **[ENTER]** to choose "No.")



4

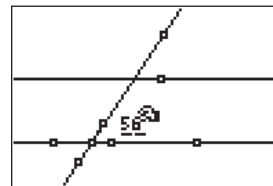
Press **[WINDOW]** for F2 and select **Line**. Move up and mark a point by pressing **[ENTER]**. Move down and left and press **[ENTER]** to mark the second point defining the transversal of the two parallel lines.

Now we will measure angles and explore angle relationships.



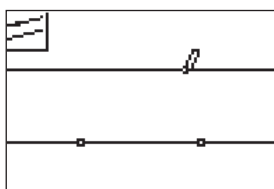
2

Press **[WINDOW]** for F2, move to **Line** and press **[ENTER]**. Move down and to the left and press **[ENTER]** to mark one point on the line. Move to the right and press **[ENTER]** to mark the second point defining the line.



5

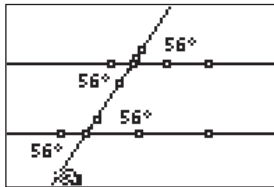
Press **[GRAPH]** for F5. Move down to **Measure**, then right and down to **Angle** then press **[ENTER]**. You must select three points to identify the angle. Move the pencil until one of the lines is flashing and press **[ENTER]** to select a point on that line. Move the pencil until one of the parallel lines and the transversal are both flashing and press **[ENTER]**. This will mark their intersection as the vertex of the angle. Move the pencil to the other line forming a side of the angle. Press **[ENTER]** when that line is flashing. Move the measurement to a convenient location. Press **[CLEAR]** to turn off the hand.



3

Press **[ZOOM]** for F3, move to **Parallel**, and press **[ENTER]**. Move the pencil until the line is blinking. Press **[ENTER]** then press **[↑]** until the second line is in the desired location. Press **[ENTER]** to mark the point through which the parallel line is drawn.

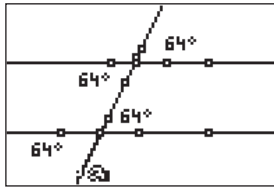
Parallel Lines Cut By A Transversal



6

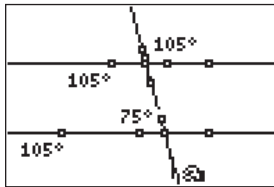
With the angle measuring tool active, measure some of the other angles formed—corresponding, alternate interior, alternate exterior...

Move each measurement to a convenient location. Press **[CLEAR]** to turn off the hand.



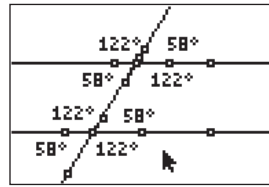
7

Move the pointer to one of the points which defined the location of the transversal. Press **[ALPHA]** to activate the *hand* and move this point. Observe the angle measures as the position of the transversal changes.



8 Extensions

Move the transversal until one of the angles has "crossed over" and observe that you now have consecutive interior angles that are supplementary.



9

Measure the remaining angles and observe the relationships among the angle measures.



For TI-Navigator™ Users

Activity Center: Load a background image of parallel lines cut by a transversal with angles named. Instruct students to move their cursors to: the interior, the exterior, to an angle with a specific characteristic (congruent to a given angle, supplementary to a given angle, ...).



10

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