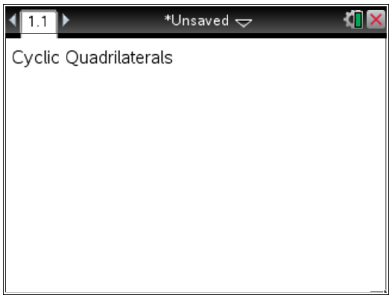
Creating: Cyclic Quadrilaterals
MATH NSPIRED

Activity Overview:

In this activity, you will use the construction tools in the Geometry application to construct several cyclic quadrilaterals.



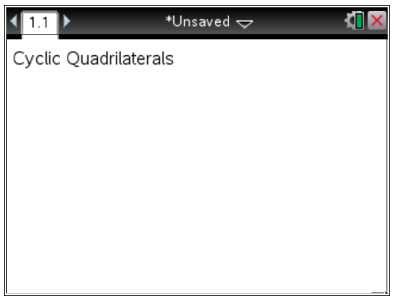
Materials

- *Technology needed (TI-Nspire™ handheld, computer software)*

Steps

Step 1: Preparing the document

1. Open a new document by clicking [on] > **New Document > Add Notes**.
2. Type: Cyclic Quadrilaterals.

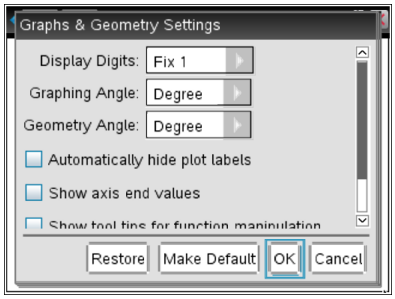


Note: To obtain capital letters, press the [shift] key, then the letter.

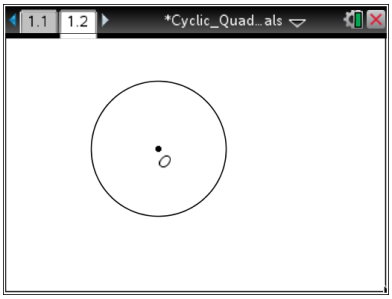
3. Press [doc] **> File > Save As….**
   Type: Cyclic_Quadrilaterals.
   Tab to [save], and press [enter].

Note: To obtain the underscore, press [ctrl] [␣].

4. To add a new page, press [ctrl] [doc] **> Add Geometry**.
5. To hide the scale in the right corner of the screen, go to **Menu > View > Hide Scale**.
6. Press **Menu > Settings**. Select “Fix 1” for display digits. Tab to Graphing Angle. Select “Degree”. Tab to Geometry Angle. Select “Degree”. Then press [tab] to move from one field to the next and press [ctrl] to uncheck each of the boxes. Tab to OK and press [ctrl] or [enter].

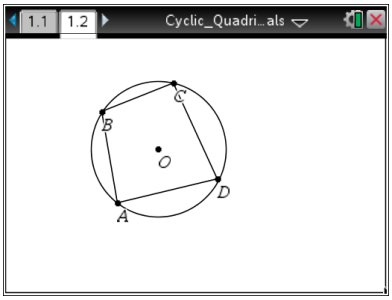


Step 2: Creating a circle



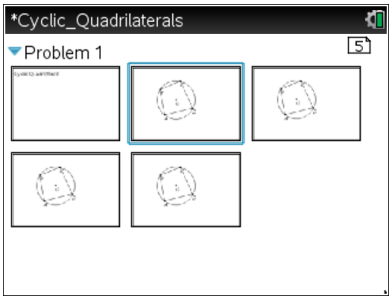
1. Press **Menu > Shapes > Circle**.
2. Move the cursor to a desired location. Press enter to mark the center of the circle. Immediately press shift O to label this as point *O*.
3. Use the Touchpad arrows to drag to a desired radius and press or enter. Press esc to exit the **Circle** tool.

Step 3: Creating a cyclic quadrilateral



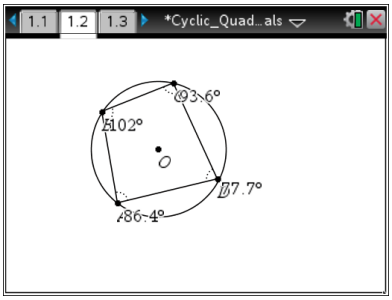
1. Press **Menu > Shapes > Polygon**.
2. Place a point on the circle by pressing or enter when the words *point on* appear. Once the point is ON the circle, immediately type shift A to label it as point *A*.
3. Move to the next vertex and repeat step 2 for points *B*, *C*, and *D*.
4. Press enter to lock the last vertex D. Press esc to exit the **Polygon** tool.

Step 4: Making several copies



1. Press ctrl ▲ to open the page sorter view.
2. While the current page is selected, press ctrl C to copy the page.
3. Press ctrl V three times to paste three copies of the screen.
4. Arrow to the second page, and press enter.
5. Page 1.2 should now be the active page.

Step 5: Finding angle measurements

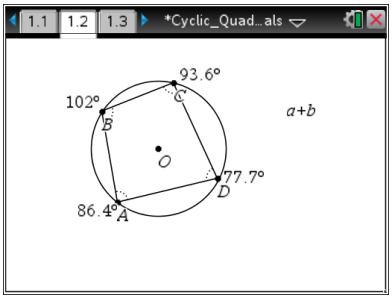


1. Press **Menu > Measurement > Angle**.
2. To measure ∠*ABC*, move the cursor to point *A* and press or enter, and then move to point *B* and press or enter. Finally, move to point *C* and press or enter. After the third point has been selected, an angle arc and measurement will appear.
3. Repeat step 2 for the other three angles.
4. Press esc to exit the **Angle measurement** tool.

Note: You may wish to move some of the angle measurements to a location on the screen where they are easier to read.

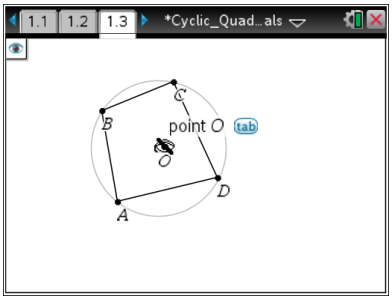
Step 6: Typing an Expression

This expression will be used later to explore angle relationships.

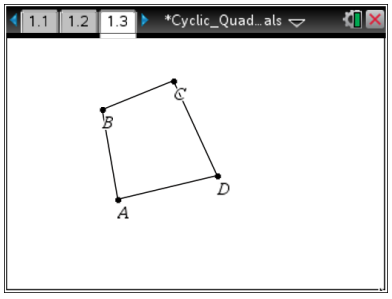


1. Press **Menu > Actions > Text**.
2. Move anywhere on the screen and press enter.
3. In the textbox, type the expression **a+b.** Press enter.
4. Press esc to exit the **Text** tool.

Step 7: Getting page 1.3 ready



1. Move to page 1.3.
2. Press **Menu > Actions > Hide/Show**.
3. Move the cursor to the circle and press or enter. (The circle should become gray.)
4. Move the cursor to point O and press or enter.
5. Press esc to exit.
6. This should hide the circle and its center point *O*.
7. Repeat for page 1.4 as well



Note: The circle and point O still exist, but are hidden from view. They can be "shown" later, if necessary.

Step 8: Saving the document

1. Press ctrl S.