



**Activity:** Interior Angle Theorem

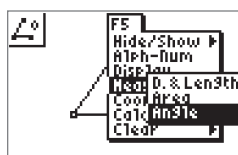
**Focus:** This activity is designed to help students discover the following theorem:

**Interior Angle Theorem:** The sum of the measures of the interior angles of a triangle is  $180^\circ$ .

**Materials:** TI-83 Plus Graphing Handheld with the Cabri Jr Software Application

1

Press the [APPS] key and select Cabri Jr.



5

Highlight **Measure**, press the right cursor and select **Angle**.

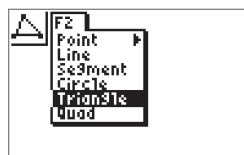


2

You should see the splash screen.  
Press any key.

6

Measure one of the interior angles of the triangle.



3

Create a triangle.

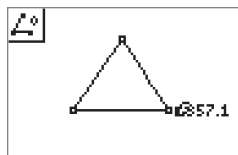
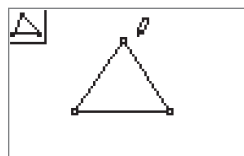
A. Press [Window].  
This will open the F2 menu.

B. Select **Triangle**.

C. Move the pencil using the cursor controls to a location for the first vertex and press [Enter].

D. Move the pencil using the cursor controls to a location for the 2nd vertex and press [Enter].

E. Move to a 3rd vertex and press [Enter].



A. Move the pencil to one of the vertex points. Press [Enter].

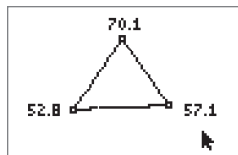
B. Move the pencil to the vertex of the angle being measured. The vertex point will blink to indicate that it is being selected. Press [Enter].

C. Move the pencil to the third vertex. Press [Enter].

D. The angle measurement will be calculated and displayed near the angle being measured. To drag the numerical measurement to a desired location, use any of the cursor controls. Press [Enter] when the angle measurement arrives at a desired location.

4

Press [Graph]. This will open the F5 menu.



7

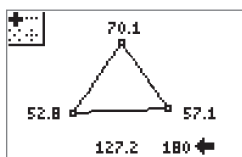
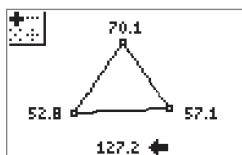
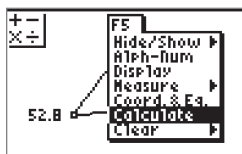
Repeat step 6 to find the angle measurements of the other two interior angles of the triangle.



## 8

Calculate the sum of the three interior angles.

- A. Press [Graph] to open the F5 window.
- B. Select **Calculate**.
- C. Move the arrow to one of the numerical angle measurements. The number will begin blinking to indicate that it is being selected. Press [Enter].
- D. Press the [+] key from the keypad.
- E. Move the arrow to another angle measurement until it starts blinking. Press [Enter].
- F. The sum of the two angles selected will be output and can be dragged by using the cursor controls. Move the new calculation to a desired location and press [Enter].



- G. Point to the new calculation until it starts blinking (sum of the 2 angles) and press [Enter] to select it.
- H. Press the [+] key.
- I. Move the arrow to the measurement for the unselected 3rd angle. Press [Enter].
- J. The calculation output will represent the sum of all three interior angles. Move the new calculation to a desired location and press [Enter].

**What is the sum of the three interior angles?**

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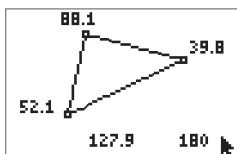
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## 9

Press [Clear] and move the arrow to one of the three triangle vertices. The arrow will become "hollow" to indicate that the vertex is being selected.

## 10

Press the green [ALPHA] key once and use any of the cursor controls to drag the vertex to a different location. Notice that the angle measurements change accordingly as the triangle changes shape.



**What is the sum of the three interior angles?**

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## 11

Continue to drag one vertex to various locations.

**Does the sum of the three interior angles ever change?**

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**What can you conclude?**

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