TI-83 Plus
Cabri® Jr. App

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What Is the Cabri Jr. Application?

Using Cabri Jr., you can:

- Draw points, segments, lines, circles, triangles and quadrilaterals.

- Construct perpendicular and parallel lines; perpendicular and angle bisectors; and geometric loci.

- Transform objects through translation, reflection, rotation, and dilation.

- Compute lengths, areas, perimeters, and angle values of relevant objects.

- Display coordinates and equations of lines and circles.

- Import/export constructions to the TI-89, TI-92 Plus, or Voyage™ 200 versions of Cabri Geometry™, as well to the Cabri Geometry II Plus computer software.

What You Need

> **Note** In this guidebook, any information that pertains to the TI-83 Plus also pertains to the TI-83 Plus Silver Edition, unless otherwise noted.

Hardware and software	Notes
TI-83 Plus or TI-83 Plus Silver Edition with version 1.16 or later of the operating system software	You can download a free copy of the latest operating system software from education.ti.com/latest.
Computer with Microsoft® Windows® 98/2000/XP, Windows NT®, or Apple® Macintosh® OS 8.1 or higher installed	
TI Connectivity™ computer-to-device cable	TI Connectivity cables are available for purchase from retail stores, online retailers, and instructional dealers. See a list at education.ti.com/buy. You may also purchase TI Connectivity cables from the TI online store at education.ti.com/shop.
TI Connect™ software, which works with most supported models of Flash-based TI graphing devices	You can download free copies of TI Connect software from education.ti.com/downloadticonnect.

Where to Find Installation Instructions

Detailed instructions on installing this and other applications are available at education.ti.com/guides. Follow the link to Flash installation instructions.

Getting Help

The Cabri Jr. App has built-in help for using the menus. To access the help, press ALPHA [F1], select **Help**, and then select the menu that you need help with.

The instructions in this guidebook are only for this application. If you need help using the TI-83 Plus, refer to its comprehensive guidebook at education.ti.com/guides.

Getting Started

In this exercise, you will construct a circle that circumscribes a triangle, that is, the circle passes through each of the three vertices of the triangle.

Starting the Cabri Jr. App

1. Press [APPS] to display a list of applications on your device, and then select **CabriJr**. The information screen is displayed.
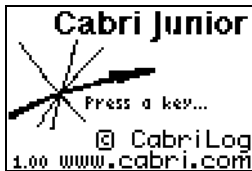
Tip | From the Apps menu, you can press [ALPHA] **C** to move to the first application name that begins with a C.

2. Press ENTER to continue. If you have previously used the App, the last screen that you viewed is displayed; otherwise, the F1 menu is displayed.
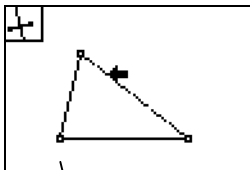
Cabri Jr. retains your last activity, including the cursor location, when you quit the App or when the TI-83 Plus turns off.

The first time you run Cabri Jr., the F1 menu is displayed with the **Help** menu item highlighted.

Navigating within the App

To use the Cabri Jr. App, you select tools and options from a set of menus. The menus remain hidden until you open them.

The menus are labeled F1-F5 and correspond to the graphing keys directly below the screen. You can press [ALPHA] plus the function key (F1-F5) to open a menu, or you can press the graphing key ([Y=], [WINDOW], [ZOOM], [TRACE], [GRAPH]) for the corresponding function key.


For example, to open the F1 menu, you can press [ALPHA] [F1] or press [Y=].

- Press [▲] and [▼] to move the pointer from one menu item to the next.

- Highlight a menu item and press [ENTER] to select it.

- Press [CLEAR] to deactivate a tool or to close the menu and return to the drawing screen.

- Press [◄], [▲], [►], or [▼] to move the pointer around on the screen. You can press and hold an arrow key to move the pointer rather than repeatedly pressing it.
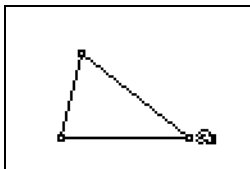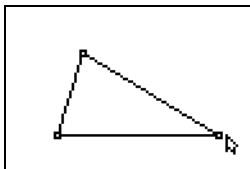
Drawing a Triangle

1. Open the F2 menu, move the pointer to **Triangle**, and press
   [ENTER]. The tool icon at the top left of the screen indicates that
   the Triangle tool is active. The pointer shape changes to a pen
   to indicate that you can draw a new point by pressing [ENTER] at
   that position.

2. Move the pointer to a convenient location for the first vertex of
   the triangle, and then press [ENTER].

3. Move the pointer and then press [ENTER] to fix the second vertex
   and continue the same way for the last vertex.
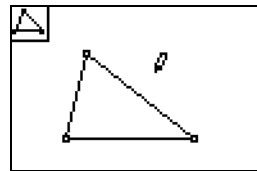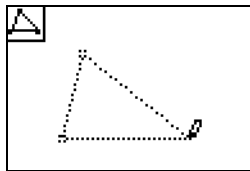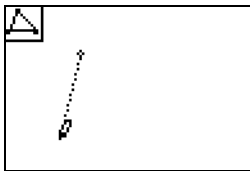

Changing the Shape of the Triangle

1. Press [CLEAR] to quit the Triangle tool.

2. Move the pointer close to one of the vertices that you drew.
   The pointer changes to a hollow arrow and the object that can
   be selected (the vertex) blinks.

3. Press ALPHA. The pointer changes to a hand, indicating that the point is selected.

4. Press ◄, ▲, ► or ▼ to move the point.

Drawing the Three Perpendicular Bisectors

1. Open the F3 menu and select **Perp. Bis**.
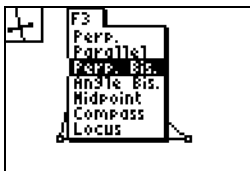
**Tip**   After you press ALPHA [F3] , you can press 3, to select **Perp. Bis.**, since it is the third menu item.
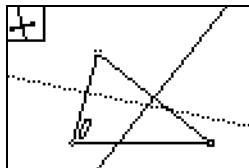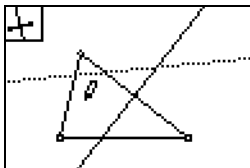
2. Move the pointer to one side of the triangle and press ENTER to construct its perpendicular bisector.

Tip | When the pointer is close enough to the triangle's side, it changes to a solid arrow and the side of the triangle blinks, indicating that you can now press [ENTER] to construct the perpendicular bisector.
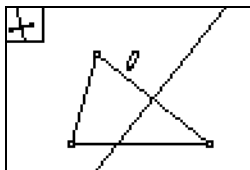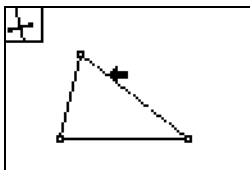
3. Move the pointer close to another side of the triangle and press [ENTER] to construct another perpendicular bisector.

4. Finally, move pointer to the last side of the triangle and press [ENTER] to construct the third perpendicular bisector. Now the perpendicular bisectors share a common point that you will use as the center of the circumscribed circle.

Drawing the Circumscribed Circle

1. Open the F2 menu and then select **Circle**.

2. Move the pointer to where the three lines intersect. All three lines blink, indicating that a point will be drawn at their intersection.

3. Press ENTER, to draw the center point of the circle.

4. Move the pointer to one of the vertices of the triangle and then press ENTER to select the vertex point and draw the circle.

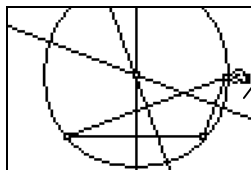**Tip** The vertex point blinks when the pointer is close enough to it for you to select it.
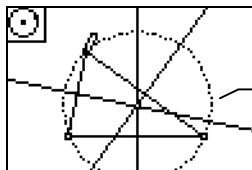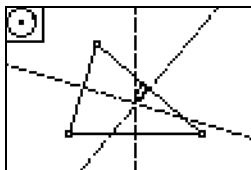
Notice that the two other vertices of the triangle are located on the circle.

You can now press CLEAR and drag any of the vertices of the triangle. The size of the circle changes as the shape of the triangle changes.

The property found before holds true: the two other vertices of the triangle are always located on the circle.

Saving Your First Construction

1. Open the F1 menu and then select **Save**.

2. Type a name (up to eight characters), and then press ENTER to save the construction.

Tip

- When this dialog box is displayed, alpha-lock is automatically turned on.

- To edit the file name, press CLEAR to delete the entire name or press DEL to delete one character at a time.

- To cancel, press 2nd to highlight the Cancel button, and then press ENTER.

To quit Cabri Jr., either press 2nd [QUIT] or press ALPHA [F1] and then select **Quit**.

Now that you have completed this example, you can read further to learn more about other Cabri Jr. features.

For example you can

- Draw different types of objects.

- Use more sophisticated construction tools.

- Apply geometric transformation to objects.

- Calculate and display measurements of angles, area, and slope, as well as distance and length

- Animate points lying on segments or circles.

Starting and Quitting the Application

Starting the Application

1. Press APPS to display the list of applications on your TI-83 Plus.

2. Select **CabriJr**. The application's information screen is displayed.

3. Press ENTER to continue. if you have not previously used the Cabri Jr. App, the F1 menu is displayed. If you have used the App, the last figure that was edited is displayed.

Tip
- To start the App with a new, blank screen, press 2nd CLEAR instead of pressing ENTER in this step.
- A contextual help screen appears after a while, if you have not started a change in the figure.

Quitting the Application

Press 2nd [QUIT] or press ALPHA [F1] and then select **QUIT**.

Navigating

The Cabri Jr. interface is designed to reproduce the look and feel of a computer graphical user interface. In the place of a mouse, you press ◁, △, ▷, and ▽ to move the pointer around on the screen. You access various functions through menus. When additional information is needed, Cabri Jr. displays a dialog box with OK, No, or Cancel buttons like those you see in many computer programs. The default button is highlighted; press [ENTER] to select it. To use a different button, press [2nd] to highlight it and then press [ENTER].

Button that is highlighted: **OK**

Button that is not highlighted: Cancel

Accessing Menus

To use the Cabri Jr. App, you select tools and options from a set of menus. The menus remain hidden until you open them.

The menus are labeled F1-F5 and correspond to the graphing keys directly below the screen. You can press [ALPHA] plus the function key (F1-F5) to open a menu, or you can press the graphing key ([Y=], [WINDOW], [ZOOM], [TRACE], [GRAPH]) for the corresponding function key.

For example, you can press [ALPHA] [F1] or press [Y=] to display the F1 menu.

- Press ▲ and ▼ to move the pointer from one menu item to the next.

- Press ▶ to display a submenu or to display the next menu to the right.

- Press ◀ to close a submenu or to display the next menu to the left.

- When a submenu is displayed, press ▶ to jump to the next menu, for example, from an F1 submenu to the F2 menu.

Tip You can select a menu item by pressing the number that corresponds to the item.

- Press $\boxed{\text{CLEAR}}$ to close the menus and return to the drawing screen.

Moving the Pointer

Press $\boxed{\triangleleft}$, $\boxed{\blacktriangle}$, $\boxed{\triangleright}$, or $\boxed{\blacktriangledown}$ to move the pointer around on the screen. You can press and hold an arrow key to move the pointer rather than repeatedly pressing it.

Selecting an Object

To select an object, move the pointer close to it and then press $\boxed{\text{ENTER}}$.

Tip
- When the pointer is close enough to the object to select it, the object blinks.
- When the object blinks, you can press $\boxed{\text{ENTER}}$ to select it, even if the pointer is not exactly on the object.

Creating, Saving, and Opening Files

Creating a New File

Open the F1 menu and then select **New** to create a new file. If you have not already saved the current figure, you will be prompted to do so.

Opening an Existing File

1. Open the F1 menu and then select **Open**. A list of files is displayed.

2. Highlight the file that you want to open and then press ENTER.

Saving a File

1. Open the F1 menu and then select **Save** or **Save As**.

Note | If you have previously saved the file, selecting Save overwrites the previous file.

2. If you have not previously saved the file or if you selected **Save As**, the Type a Name dialog box is displayed. Enter a file name, and then press $\boxed{\text{ENTER}}$ to save the file.

Tip Alpha lock is already turned on when the Type a Name dialog box is displayed.

Drawing Objects

Drawing a Point

1. Open the F2 menu, select **Point**, and then press ENTER to select the Point tool.

2. Move the pointer to the desired location and then press ENTER to create the point.

Drawing a Point on an Object

1. Open the F2 menu, press ENTER to select **Point**, highlight **Point On**, and then press ENTER.

2. Move the pointer to the object on which you want to draw a point, and then press ENTER to select the object and draw the point.

Tip The object blinks when the pointer is close enough to it for you to select it.

Drawing a Point at the Intersection of Two Objects

Open the F2 menu, press ENTER to select **Point**, highlight **Intersection**, and then press ENTER.

If the objects intersect within the display:

1. Move the pointer to the intersection point. The objects that intersect at the pointer position blink.

2. Press [ENTER] to create the intersection point.

If the objects intersect outside of the display:

1. Move the pointer to the first object, and then press [ENTER].

2. Move the pointer to the second object, and then press [ENTER]. The intersection point is created.

Tip
- Usually, you can create a point on an object or a point at an intersection by using the Point tool without selecting the 'Point on', or 'Point at intersection' tools.
- When the current tool requires selection of a point(s), you can create the point(s) by moving the pointer to an empty space and pressing [ENTER]. For example, select the Line tool and press [ENTER] at two empty positions on the screen. New points are created at those positions, and the line is created.

Drawing a Line, Segment, or Circle

1. Open the F2 menu, select an object type, and then press [ENTER].

2. Move the pointer to a location for the first point of the object, and then press ENTER to draw the point.

   –or–

   Move the pointer to an existing point, and then press ENTER to select that point.

3. Move the pointer to a location for the second point of the object, and then press ENTER to draw the point. The object is drawn.

   –or–

   Move the pointer to an existing point, and then press ENTER to select that point. The object is drawn.

Drawing a Triangle or Quadrilateral

1. Open the F2 menu, select **Triangle** or **Quad**, and then press ENTER.

2. Move the pointer to a location for the first point of the object, and then press ENTER to draw the point.

   –or–

   Move the pointer to an existing point, and then press ENTER to select that point.

3. Repeat step 2 until you have drawn or selected three points for a triangle or four points for a quadrilateral. The object is drawn.
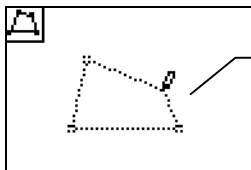
The dotted lines show the construction of a triangle or quadrilateral in progress.

Drawing Perpendicular or Parallel Lines

You can draw perpendicular or parallel lines in two ways:

- Draw the line with respect to another object

- Draw the line through a given point with respect to another object

Drawing the Line with Respect to Another Object

1. Open the F3 menu, and then select **Perp.** or **Parallel**.

2. Move the pointer to the line or segment for which you want to draw the perpendicular or parallel line, and then press ENTER. The new line is drawn.

3. Move the pointer where you want to place the new line, and then press ENTER. A point is drawn at that position, and the new line is drawn through the point.

Drawing the Line through a Point with Respect to Another Object

1. Open the F3 menu, and then select **Perp** or **Parallel**.

2. Move the pointer to a point through which you want to draw the line and then press ENTER to select it.
    –or–
    Move the pointer to where you want to create the point and press ENTER to create a point and select it.

3. Move the pointer to the line or segment for which you want to draw the perpendicular or parallel line, and then press ENTER. The new line is drawn through the point.

Drawing Perpendicular or Angle Bisectors

You can draw perpendicular bisectors in two ways:

•   Draw the perpendicular bisector of a line segment that you select

- Draw a line that is the perpendicular bisector between two points, when the line segment between the two points has not been drawn

Drawing a Perpendicular Bisector of a Segment

1. Open the F3 menu and then select **Perp. Bis**.

2. Move the pointer to the line segment for which you want to draw the perpendicular bisector, and then press [ENTER]. The new line is drawn.

Drawing a Perpendicular Bisector between Two Points

1. Open the F3 menu and then select **Perp. Bis**.

2. Move the pointer to the first point, press [ENTER], then move the pointer to the second point and press [ENTER]. The perpendicular bisector is drawn.
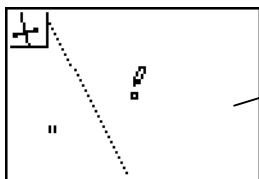
After you select the first point, a dotted line is drawn. This line moves as you move the pointer to the second point. After you select the second point, it becomes a solid line.

Drawing an Angle Bisector

1. Open the F3 menu and then select **Angle Bis**.

2. Move the pointer to each of the three points that create the
    angle, pressing [ENTER] at each point. When you select the third
    point, the angle bisector is drawn.

Note | The second point you select is taken as the vertex of the angle. |

Drawing a Midpoint

To draw the midpoint of two points or the midpoint of a line
segment:

1. Open the F3 menu and then select **Midpoint**.

2. Move the pointer to the line segment, and then press [ENTER].
    The midpoint is drawn.
    –or–
    Select two points by moving the pointer to each of the points,
    pressing [ENTER] at each one. After you select the second point,
    the midpoint is drawn.

Drawing a Circle Using the Compass Tool

When you draw a circle using the compass tool, a line segment or the distance between two points is the radius for the circle.

1. Open the F3 menu and then select **Compass**.

2. Move the pointer to the line segment, and then press ENTER. A dotted circle is drawn.
   –or–
   Move the pointer to the first point and press ENTER, then move the cursor to the second point and press ENTER. A dotted circle is drawn.

3. Use ◀, ▶, ▲, ▼ to move the dotted circle (if necessary), and then press ENTER to finish.

Clearing the Screen

- To clear the entire screen, open the F5 menu, select **Clear**, and then select **All** or press CLEAR three times.

- To clear an object, open the F5 menu, select **Clear**, select **Object**, move the pointer to the object, and then press ENTER.

Using the Undo Feature

Open the F1 menu and then select **Undo** to undo the last action. This functionality is available as long as the current figure does not contain more than 128 objects.

Note | Selecting Undo multiple times in a row toggles between Undo and Redo. However, the menu item name (Undo) remains unchanged.

Canceling the Last Input while Creating an Object

During the construction process, you can press DEL to remove the last selected object from the current selection.

Moving Objects

1. If there is a tool icon at the top left of the screen, press CLEAR to exit the tool.

2. Move the pointer next to the object to be moved. If it can be moved, it will start blinking.

3. Press ALPHA to change the pointer shape to a hand, indicating that you can now move the object.

4. Move the object to the desired location, and then press ENTER to set its new position.

Animating Objects

The Animate menu item on the F1 menu lets you set a point or points in motion along an object that you have created, as well all objects logically depending on it.

1. Draw a point or points on a segment or circle.

2. Open the F1 menu and select **Animate**.

3. Move the pointer to a point that you created and then press ENTER to select the point.

Note
- When the pointer is close to an object that can be animated, the pointer changes to the double arrow ↔.
- You can animate several points simultaneously.
- If you save a figure having animated point(s), the figure is saved along with its animation. The next time it is opened, the corresponding animation will start automatically.
- You can transmit your best animations to anyone else who has a TI-83 Plus.

4. To stop animating an object, open the F1 menu, select **Animate**, and press [2nd]. The tool icon changes from ⟷ to ⟷ . Press [ENTER] to stop the animated object.

Tip

When there are several animated points, you can stop the animation of an individual point.

- Check that the current tool icon is ⟷ . (Press [2nd] to switch the icon from ⟷ to ⟷ , if necessary.)
- Move the cursor on the path of the moving point.
- Press [ENTER] when the pointer changes to a double arrow.

Creating a Locus

The Locus item on the F3 menu lets you build the locus of an object that depends on a point located on a segment or circle.

1. Draw a figure containing

    - a segment or circle.

    - a point on the above.

    - an object or construction which uses the point.

2. Open the F3 menu, select **Locus**, and then press $\boxed{\text{ENTER}}$.

3. Move the pointer to the object or construction which uses the point, and press $\boxed{\text{ENTER}}$.

4. Move the pointer to the point, and press $\boxed{\text{ENTER}}$. Cabri Jr. draws the locus of the object or construction, as the point moves over the segment or circle.

Locus and Animation Example

1. Draw a [line segment](#) *AB* and a [point](#) *F*.
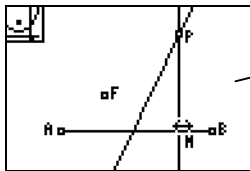
See [Creating Labels](#) for instructions on how to add labels to your drawing.

2. Draw the [perpendicular bisector](#) of Point *F* and another point taken on *AB*, named *H*.

3. Draw a [perpendicular line](#) to *AB* through *H*.

4. Draw [intersection point](#) *P*, of the two lines.

5. Open the F3 menu and select **Locus**.

6. Select point *P* and press ENTER.

7. Move the pointer to point *H*. The shape of the pointer changes to a double arrow.

8. Press ENTER. A parabola made of a set of points is drawn.
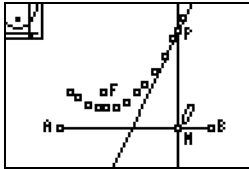
9. Press CLEAR to quit the Locus tool.

10. Open the F1 menu and select **Animate**.

11. Move the pointer to point *H* and press ENTER to animate it. It moves back and forth along the line segment. At the same time, the perpendicular bisector is animated. It stays tangent to the parabola.

Transforming Objects

Symmetry

1. Draw an object.

2. Open the F4 menu and then select **Symmetry**.

3. Select the object, and then select the center point of symmetry. The new object is drawn.

Reflection

1. Draw an object.

2. Draw a line or line segment around which the object will be reflected.

3. Open the F4 menu and then select **Reflection**.

4. Select the object to reflect.

5. Select the line or segment about which the object will be reflected. The object is reflected.

Translation

1. Draw an object.

2. Draw a line segment or two points that define the length and direction of translation.

3. Open the F4 menu and then select **Translation**.

4. Select the object, and then select either the line segment or the two points. A new translated object is created.

Tip | If the object to translate is a segment, you must use another segment (not two points), as the second argument to set the translation direction and magnitude

Rotation

1. Draw an object.

2. Draw a point around which the object will be rotated, and then draw three points whose angle will determine the angle of rotation.

3. Open the F4 menu and then select **Rotation**.

4. Select the object to rotate, and then select the point around which the object will be rotated.

5. Select the three points that determine the angle of rotation. A new rotated object is created.

Dilation

1. Draw an object.

2. Draw a point that is the center for the dilation.

3. Use the [Alpha-Num](#) tool to place the dilation factor on the screen.

4. Open the F4 menu and then select **Dilation**.

5. Select the object, select the point, and then select the dilation factor. A new dilated object is created.

Note	When a tool requires selecting several elements, the order in which they are selected does not matter if they are of different types, but it does matter for elements of the same type. Example: • If you create a line perpendicular to an existing line *L* and going through point *A*, you can select *A* first and then *L*, or the other way around. • If you create the angle defined by 3 points *A*, *B*, *C*, the order of selection is significant: the second point selected is the vertex angle.

Hiding and Showing Objects

To hide an object:

1. Draw an object.

2. Open the F5 menu, select **Hide/Show**, and then select **Objects**.

3. Move the pointer to an object. The pointer changes to an eraser.

4. Press [ENTER] to hide the object. The object is displayed with dotted lines until the pointer is moved away.

To show an object:

1. Open the F5 menu, select **Hide/Show**, and then select **Objects**.

2. Move the pointer toward the location of the hidden object. The pointer changes to a pen when it is close enough to a hidden object to select it.

3. Press [ENTER] to show the object.

Hide/Show Axes

To hide/show the axes, open the F5 menu, select **Hide/Show**, and then select **Axes**.

When axes are visible they can be moved around on the screen. All geometric objects (and their labels) move at the same time, since they are linked to the axes. Other objects (like coordinates, measurements, computations, and comments) stay in place and can be moved individually.

The default position of the axes is as follows:
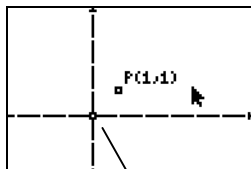
The origin is placed off-center to provide more space in the first quadrant.

Creating Labels and Entering Text

Use the Alpha-Num tool to label points, enter comments, and to enter numerical values.

To label a point:

1. Open the F5 menu and select **Alpha-Num**.

2. Move the pointer to the point and press ENTER. The point blinks when the pointer is close enough to the point to select it.

3. Type the label and press ENTER. The label is placed close to the point.

Tip
- Entering text is the default option, so the alpha-lock is automatically turned on when you first select **Alpha-Num**.
- Labels for points can have up to six characters.

To type text on the drawing screen:

1. Open the F5 menu and select **Alpha-Num**.

2. Move the pointer where you want to type text and press ENTER.

3. Type the text and press $\boxed{\text{ENTER}}$.

Note

- To type a number, press $\boxed{\text{ALPHA}}$ to change from text mode to numeric mode. Press $\boxed{\text{ALPHA}}$ again to change back to text mode.

- A number can be made of signs ('+' or '-'), followed by digits and at most one '.' decimal point.

- Press $\boxed{\text{ENTER}}$ again to create a line break. The pointer moves to the line below the current line of text.

- A line of text can have up to 22 characters, including spaces. When the maximum number of characters has been reached, the insertion point changes to a rotating '!' character.

Controlling the Display of Objects

Use the Display tool to toggle the

- outline of an object between solid and dotted

- equation of a circle between the two forms, $(x-a)^2 + (y-b)^2 = c^2$ and $x^2 + y^2 + ax + by + c = 0$.

- display of measurement or results between 0 or 1 decimal place.

1. Open the F5 menu and select **Display**.

2. Move the pointer to the item that you want to change. The pointer changes from a solid arrow to a hollow arrow.

3. Press ENTER to select the item and change the display.

Calculating and Displaying Measurements

Distance and Length

Use the Distance and Length tool to find the distance between two points; length of a line segment; perimeter of a triangle or quadrilateral; or the circumference of a circle.

1. Open the F5 menu, select **Measure**, and then select **D. & Length**.

2. Select the two points whose distance from each other you want to calculate or the object for which you want the perimeter. The measurement is displayed. The pointer changes to a hand, indicating that you can move the measurement.

3. Move the pointer where you want the measurement displayed and press ENTER.

Note | For triangles and quadrilaterals, you can select either the length of a side, or the perimeter. The side segment and the perimeter blink alternately.

- Press ENTER at the appropriate time to make your selection.
- Press 2nd to toggle the element currently blinking.

Area

Use the Area tool to compute the area of a triangle, quadrilateral, or circle.

1. Open the F5 menu, select **Measure**, and then select **Area**.

2. Select the object. The measurement is displayed. The pointer changes to a hand, indicating that you can move the measurement.

3. Move the pointer where you want the calculation displayed and press [ENTER].

Angle

Use the Angle tool to measure angles (in degrees) determined by three points, the second of which is the vertex of the angle. The angle measured is the interior angle.

1. Open the F5 menu, select **Measure**, and then select **Angle**.

2. Select the three points that form the angle you want to measure. The measurement is displayed. The pointer changes to a hand, indicating that you can move the measurement.

3. Move the pointer where you want the measurement displayed and press [ENTER].

Slope

Use the Slope tool to find the slope of a line segment or line. If the slope is too large to be displayed numerically, ### is displayed instead.

1. Open the F5 menu, select **Measure**, and then select **Slope**.

2. Select the line or segment. The measurement is displayed. The pointer changes to a hand, indicating that you can move the measurement.

3. Move the pointer where you want the measurement displayed and press ENTER.

Performing Calculations

Use the Calculate tool to perform calculations using values that are displayed on the drawing screen. You can add, subtract, multiply, and divide numbers, as well as take the square root of a number. A computation is performed as soon as enough information has been given to Cabri Jr.

1. Find [measurements](#) of objects or place numeric labels on the drawing screen.

2. Open the F5 menu and select **Calculate**.

3. Select the measurement(s), and then select the operator $\boxed{+}$, $\boxed{-}$, $\boxed{\times}$, $\boxed{\div}$, or $\boxed{\text{2nd}}$ $\boxed{\sqrt{\ }}$. The operator icon is displayed in the upper left corner of the screen after you select it.

4. Press $\boxed{\text{ENTER}}$ to perform the calculation. The result is displayed. The pointer changes to a hand, indicating that you can move the result.

5. Move the pointer where you want the result displayed and press ENTER.

Note | Cabri Jr. can display results ranging from ‑204.8 to 204.7. If the result of the computation is too large to be displayed, the App displays ###.

Finding the Equations of Lines or Circles and Coordinates of Points

Use the Coord. & Eq. tool to display coordinates of points and equations of lines and circles, in the underlying system of axes.

1. Open the F5 menu and select **Coord. & Eq**.

2. Move the pointer to the object and press ENTER to select it. The coordinates of the point or the equation of the line or circle is displayed. The pointer changes to a hand, indicating that you can move the result.

3. Move the pointer where you want the result displayed and press ENTER.

Using Cabri Jr. in a Different Language

Special application variables (AppVars) available from the TI Web site allow Cabri Jr. to run in different languages.

To take advantage of this, download one of the following files.

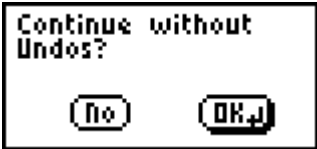| AppVar File Name	Language
CJ_USEng.8xv	English with US spelling
CJ_UKEng.8xv	English with British spelling
CJ_Francais.8xv	French
CG_Espanol.8xv	Spanish

(More languages will be available soon at education.ti.com).

English with US spelling is the default language. As soon one of the language AppVars is present in the RAM of your TI-83 Plus, Cabri Jr. will start using the corresponding language.

Tip
- If you have more than one language AppVar on your TI-83 Plus, Cabri Jr. will use the first one, in alphabetical order.
- You can skip using the language AppVar and use the built-in US-English language by pressing [2nd] [}] while the information screen is displayed.

Error Messages

Error Message	Description
Not enough Memory! Add. RAM needed: 2421 (OK↵)	Cabri Jr. needs at least 4869 free bytes to run (roughly 5k). The dialog box indicates how much more free memory you need to be able to run Cabri Jr. It is possible to make more RAM or Flash memory available to Cabri Jr., by removing files stored in RAM or in Flash. Refer to the calculator manual for more information.
Continue without Undos? (No) (OK↵)	When more than 128 objects have been drawn, Undo must be disabled to continue. After this error message is displayed, a dialog box asks if you want to continue. If you continue, Undo is disabled Undo will be automatically re-enabled if the number of objects becomes lower than 128.
Max. object# reached (OK↵)	Cabri Jr. figures can have a maximum of 256 objects.

Error Message	Description
Not enough Memory! to save file. **(OK)**	If there is not enough available RAM to save the figure, this message is displayed. When this message is displayed, the current figure is not lost. You can save the figure anyway by: • quitting Cabri Jr. and deleting some files to create more free RAM (5K should be enough). You must not delete the AppVar CurrCaJu; it contains the current figure. • saving CurrCaJu on your computer or another unit, and making use of it later when you have enough available RAM on your device.
No Figure to open yet! **(OK)**	You have selected Open from the F1 menu, but there are no saved figures on your TI-83 Plus to open.
Name already exists! Continue anyway? **(No)** **(OK)**	You have entered a file name for your figure that already exists. Select OK to overwrite the existing file, or select No to return to the Save dialog box so that you can enter a different file name.
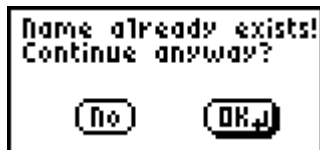
Error Message	Description
CURRCAJU is reserved. (OK)	You cannot use CURRCAJU as a file name. It is a reserved AppVar name.
Figure abc not re-archived! (OK)	This happens, under tight Flash RAM conditions, when you have been working with an archived figure and make it significantly larger. In such a case, there may not be enough memory to save the figure in Flash Ram, so it is saved as a regular AppVar.

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