

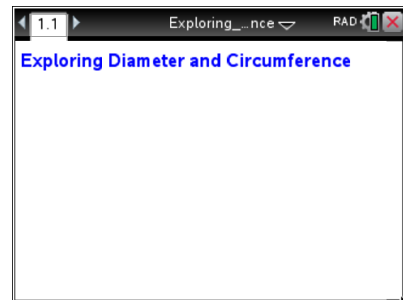


# Exploring Diameter and Circumference

MATH NSPIRED

## Activity Overview

In this activity, you will prepare a document that will allow you to capture data to explore the relationship between the circumference and diameter of a circle.



## Materials

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

### Part 1 Preparing the document

1. Open a new document by clicking on > **New Document > Add Notes.**

2. Type **Exploring Diameter and Circumference.**

**Notes:** To obtain capital letters, press the key, then the letter. To change the text format or color, first select the text by holding down the shift key and pressing the right or left arrow key on the Touchpad. Then, press **Menu > Format** and select Format Text or Text Color.

3. Press > **File > Save.**

Type **Exploring\_Diameter\_and\_Circumference.**

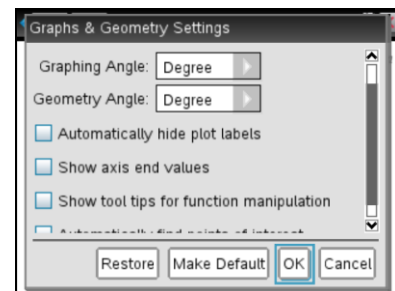
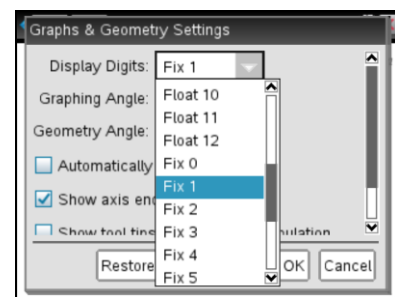
Tab to and press .

**Note:** To obtain the underscore on a handheld, press .

4. To add a new page, press **Doc > Insert > Page > Add Geometry.**

**Shortcut:** Press > **Add Geometry.**

5. Select **Menu > Settings.** Select “Fix 1” for display digits. Tab to Graphing Angle. Select Degree. Tab to Geometry Angle. Select Degree. Then press to move from one field to the next and press to uncheck each of the boxes. Tab to **OK** and press or .





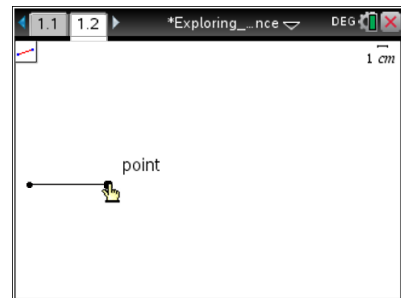


# Exploring Diameter and Circumference



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### Part 2 Making a segment

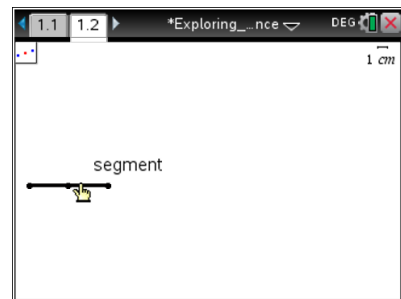
6. Select **Menu > Points & Lines > Segment**.
7. Move the cursor to the left edge of the window and press  to create an endpoint of the segment.
8. Move to the right and press  to create the other endpoint of the segment.
9. Press **esc** to exit the **Segment** tool.





### Part 3 Constructing a midpoint

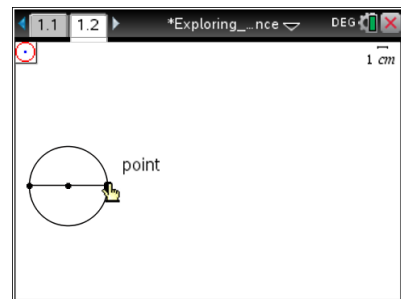
10. Select **Menu > Construction > Midpoint**.
11. Move the cursor near the segment until you see a hand  and the word *segment*. Press .
12. Press **esc** to exit the **Midpoint** tool.

**Note:** A midpoint can also be constructed by pressing  or **enter** on each endpoint.




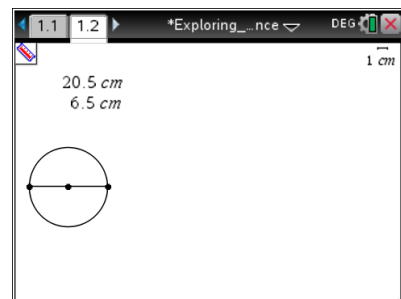
### Part 4 Drawing a circle

13. Press **Menu > Shapes > Circle**.
14. Move to the midpoint of the segment and press  to select the point as the center of the circle.
15. Move to an endpoint of the line segment and press  to indicate the radius point of the circle.
16. Press **esc** to exit the **Circle** tool.



### Part 5 Measuring a circle and its diameter

17. Press **Menu > Measurement > Length**.
18. Move the cursor over the circle until it is selected (it will be bold and the word *circle* appears). Press  to obtain the circumference.





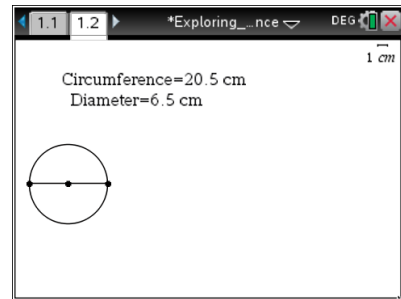
# Exploring Diameter and Circumference

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19. Move the measurement to the top left of the screen and press to place the measurement.
20. Move the cursor over the segment until the segment is selected (it will be bold and the word *segment* appears). Press to obtain the length of the diameter.
21. Move the diameter value below the circumference measurement and press .
22. Press **esc** to exit the **Measurement** tool.

### Part 6 Storing values into variables

23. Select the measurement for the circumference by clicking on it. A blue box will appear. Then press **var** and select Store Var.
24. Type **Circumference** in place of the word *var*. Press **enter**.



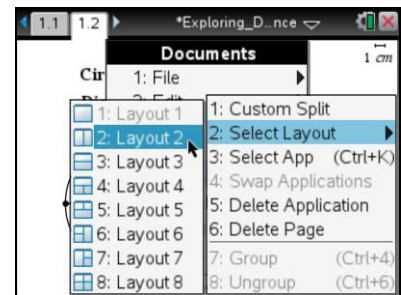
25. Repeat this process to store the diameter value as **Diameter**.

**Note:** You may need to grab and move these values to the left part of the screen so that they can be read more easily.

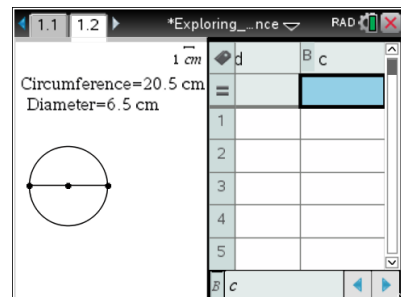
### Part 7 Using Lists & Spreadsheet

26. Press **doc** > **Page Layout** > **Select Layout** > **Layout 2** to split the screen vertically.
27. Select the application on the right hand side of the screen and press **Add Lists & Spreadsheet**.

**Note:** On the handheld, press **ctrl** **tab**, to switch applications, then press **Menu** > **Add Lists & Spreadsheet**.



28. Move to the top row above the formula row in Column A. Type **d**, for diameter. Press **enter**.
29. Move to the top row above the formula row in Column B. Type **c**, for circumference. Press **enter**.





# Exploring Diameter and Circumference

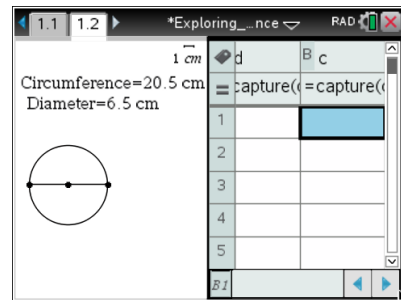
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### Part 8 Capturing Data

30. Move to the formula row in Column A. Press **Menu > Data > Data Capture > Manual**.

31. Type the word *diameter* in place of *var* and press **enter**.

**Note:** On the handheld press **var**, choose the variable *diameter* and press **enter**.



### Part 9 Saving the document

32. Move to the formula row in Column B. Press **Menu > Data > Data Capture > Manual**.

33. Type the word *circumference* and press **enter**.

**Note:** On the handheld press **var**, choose the variable *circumference* and press **enter**.

34. Press **ctrl S**.

**Note:** To resize the data columns, place the cursor in the desired column, press **ctrl Menu > Resize > Resize Column Width**. Then use the arrow keys and press **enter** to save changes. In the accompanying activity, students will use Column C to explore relationships between diameter and circumference.