

CCSS Math Practices Alignment Sample

Activity: “Diameter and Circumference of a Circle” for the TI-84 Plus Family

Note: This alignment sample is intended to highlight opportunities to use TI Technology to help facilitate students' participation in the CCSS Standards for Mathematical Practice. The prompts and examples provided here are from the Teacher and Student activity documents and demonstrate how the activity can be used to engage students in the Practices. It is possible the activity can be used to engage students in the other Math Practices that are not specified here.

2. Reason abstractly and quantitatively.

Students should:

- Understand and explain the meaning of quantities and relationships in the problem.
- Be able to represent a problem using words, numerical expressions or equations, graphs and diagrams.
- Consider the units involved in the problem and use appropriate conversions, as needed.

TI-84 Plus Technology and Teaching Tips:

- As the students construct their circles, compile the measurements for diameter and circumference into a table. Using the STAT menu on the calculator, enter the value for diameter and circumference into lists L1 and L2, respectively.
- Calculate the linear regression and discuss how the equation of the line relates to the equation for the circumference of the circle. Have students discuss the meaning of the slope in this equation and why the y-intercept is zero.
- Ask students to develop a formula for circumference based on the results from the exercise below.

5. Use appropriate tools strategically.

Students should:

- Consider the benefits and limitations of the available tools to decide which are appropriate for solving a given problem.
- Understand how technology can help visualize and explore results, find patterns and compare relationships.
- Use technology to model problems and to analyze and justify their results.
- Use technology to deepen their understanding of concepts.

TI-84 Plus Technology and Teaching Tips:

- In place of Step #6 on the Student Worksheet, have students create on paper a table of values for circles with varying sizes of diameters and circumference. Enter these values in lists L1 (diameter) and L2 (circumference). In L3, divide L2 by L1. Ask students to explain the results.

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6. Attend to precision.

Students should:

- Use clear definitions and precise mathematical language when justifying their conclusions.
- Use correct symbols in expressions, label graphs accurately, specify correct units and appropriately use estimation to solve problems.
- Express numerical answers with the appropriate degree of precision.

TI-84 Plus Technology and Teaching Tips:

- In this activity, students are asked to round the diameter and circumference to the nearest hundredth. Use this as an opportunity to discuss rounding and precision for approximations involving π . When is it appropriate to leave a calculation in terms of π ? When is it acceptable to approximate π using 3.14?

8. Look for and express regularity in repeated reasoning.

Students should:

- Discern patterns in calculations and formulas.
- Use previous knowledge to find and apply general methods to solve problems.
- Attend to details and evaluate the reasonableness in intermediary results.

TI-84 Plus Technology and Teaching Tips:

- Ask students to explain why, even though they have varying circle sizes, the resulting ratio of the circumference to the diameter is always the same.
- Have students use the results from this activity to formulate an expression for finding the circumference of a circle, given the diameter.