

CCSS Math Practices Alignment Sample

Activity: “Domain and Range” for TI-Nspire™ Technology

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.	
<p><i>Students should:</i></p> <ul style="list-style-type: none"> - 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. 	<p><i>TI-Nspire™ Technology and Teaching Tips:</i></p> <ul style="list-style-type: none"> - Ask students to explain the meaning of the domain in the context of a real world problem. <p><i>TI-Nspire™ Navigator™ System Extension:</i></p> <ul style="list-style-type: none"> - Use Live Presenter to have a student explain his/her model or solution to a problem to the rest of the class. Encourage students to discuss the solution and how they could use similar reasoning to solve other problems.
5. Use appropriate tools strategically.	
<p><i>Students should:</i></p> <ul style="list-style-type: none"> - 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. 	<p><i>TI-Nspire™ Technology and Teaching Tips:</i></p> <ul style="list-style-type: none"> - Allow students to create their own function on a new Graphs page. - Discuss what is needed to solve a problem and then determine which tools might be appropriate for solving it. <p><i>TI-Nspire™ Navigator™ System Extensions:</i></p> <ul style="list-style-type: none"> - Use Live Presenter to allow students to share their solutions and strategies for tool selection with one another. - Use Quick Poll to assess the different tools and strategies the students consider useful to solving the problem. Use the results of the poll to lead a discussion with the class about these strategies.
6. Attend to precision.	
<p><i>Students should:</i></p> <ul style="list-style-type: none"> - 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. 	<p><i>TI-Nspire™ Technology and Teaching Tips:</i></p> <ul style="list-style-type: none"> - Discuss how to write and interpret symbolic expressions that describe the domain and range for a function.

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- Express numerical answers with the appropriate degree of precision.

TI-Nspire™ Navigator™ System Extensions:

- Use Class Capture to view students’ strategies for solving a problem and discuss the benefits of the selected strategies. Be sure students use the correct mathematical language in their discussions.
- Use the results from a Quick Poll to determine whether the responses attend to precision. Discuss how to use correct symbols and precise mathematical language to express ideas and solutions.

7. Look for and make use of structure.

Students should:

- See the “big picture” in a problem and look for patterns in intermediary results.
- Identify patterns and use previous knowledge to leverage those relationships to solve problems.

TI-Nspire™ Technology and Teaching Tips:

- Discuss strategies for identifying the domain and the range from a graph.
- When will a function have a restricted domain? Discuss ways to determine this from the graph.

TI-Nspire™ Navigator™ System Extension:

- Have students examine a pattern in a function or geometric relationship. Send an open-response Quick Poll to find out what they notice.

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-Nspire™ Technology and Teaching Tips:

- Discuss whether it is possible for two different functions to have the same domain and range. Ask students to provide examples to prove/disprove their conjecture.

TI-Nspire™ Navigator™ System Extension:

- Use Class Capture to display students’ screens for the above discussion. Allow students to comment on their work and to use their examples to support their conjectures.