Open the TI-Nspire document *FromGraphsToFunctions*.

In this activity, you will apply your knowledge of the characteristics of zeros to find possible polynomial functions for given graphs.

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FROM GRAPHS TO FUNCTIONS

Precalculus
Use the **Point On** tool to determine the zeros of the graphed function.
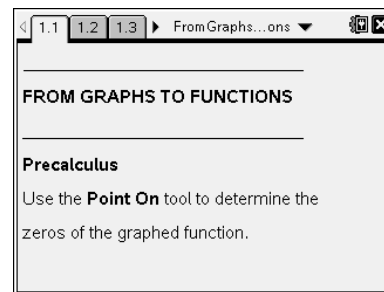
Move to page 1.2.

Press (ctrl) ► and (ctrl) ◄ to navigate through the lesson.

1. What are the zeros of the function?

2. For what value(s) of *x* does the graph of the function cross the *x*-axis? If you wrote this type of zero as a factored term in a polynomial function, what type of exponent would it have?

3. For what value(s) of *x* does the graph of the function touch but not cross the *x*-axis? If you wrote this type of zero as a factored term in a polynomial function, what type of exponent would it have?

4. Write the factored form of a function with the *smallest* degree that has the same zeros as the graph.

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5. What are the zeros of the function?

6. For what value(s) of *x* does the graph of the function cross the *x*-axis?

7. For what value(s) of *x* does the graph of the function touch but not cross the *x*-axis?

8. If the function of the graph has a degree of 9, what is a possible function in factored form? Explain the method you used to determine the function.

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9. Write the factored form of the function with the *smallest* degree that would have the number and type of zeros visible in the graph.

10. Describe how you could verify whether the equation you wrote matches the graph. What other information would be helpful in finding the exact equation?