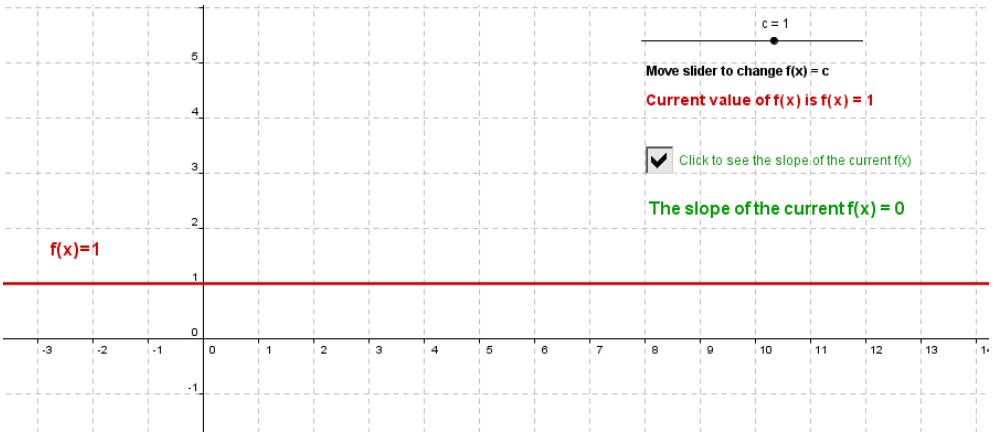
Student Activity: To investigate the Derivative of a Constant Function

Use in connection with the interactive file, 'Derivative of a Constant Function', on the Student's CD.

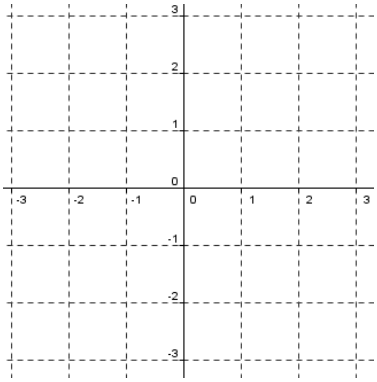


1. What is the slope of the line f(x) = 1? Is it the same at all point on the line?

   _____

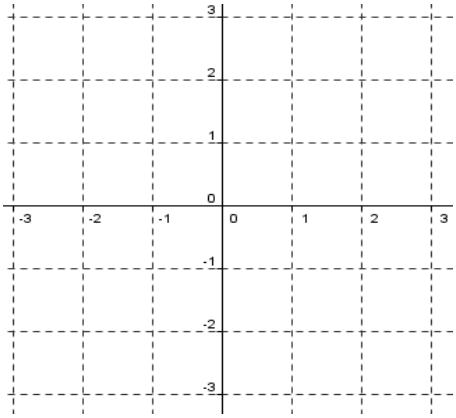
2. Draw the line f(x) = 3. What is its slope? Explain your reasoning.

   _____



3. Draw the line f(x) = −2. What is the slope of this line? Can you give the equation of another line having this slope?
   Complete the statement: All lines parallel to the x-axis have slope_____

   _____



4. Write the equation of the x axis in the form f(x) = c. What is the slope of the x axis?

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5. What is the slope of any line that takes the form f(x) = c, where c ∈ R?

_____

6. Given that the derivative of a function at a particular point on the graph is equal to the slope of the function at that point, what is the derivative of f(x) = c for all points on f(x), where c ∈ R?

_____

7. Find the derivative of the following functions for all values of x ∈ R:
   a. f(x) = 2

      _____

   b. f(x) = 10

      _____

   c. f(x) = −5

      _____

   d. f(x) = −¾

      _____

8. Given that $\frac{dy}{dx}$ is the derivative of y with respect to x, find $\frac{dy}{dx}$ when y = 12.

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9. Given that f'(x) is the derivative of f(x) with respect to x, find f'(x) when f(x) = −4.

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10. From your work above, what can you conclude about the derivative of a constant? Explain your reasoning.

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