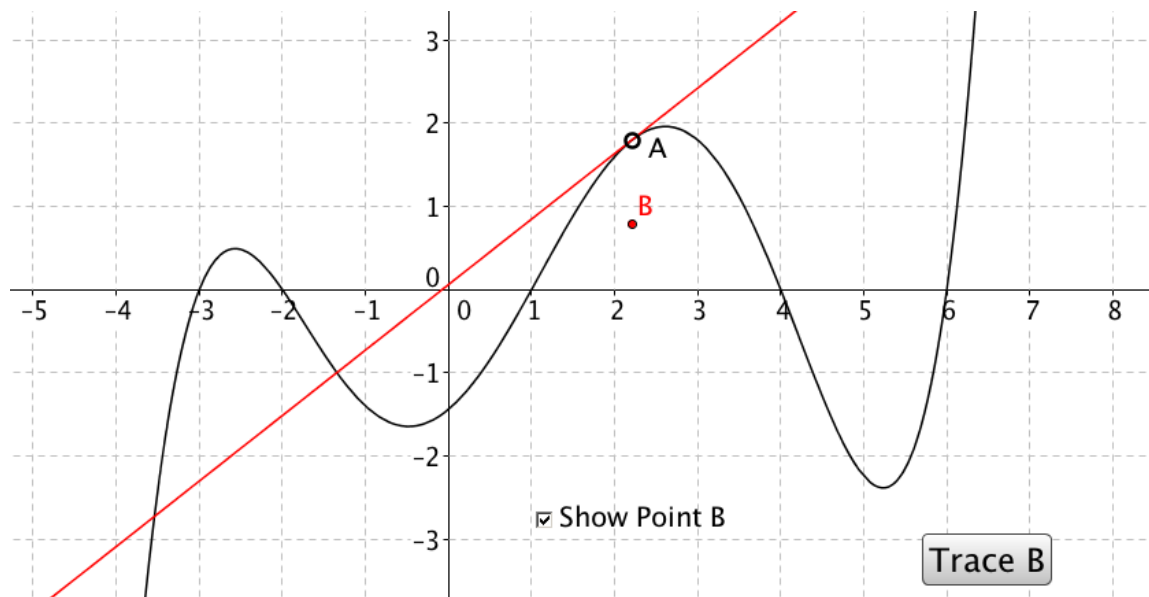


## DoNow

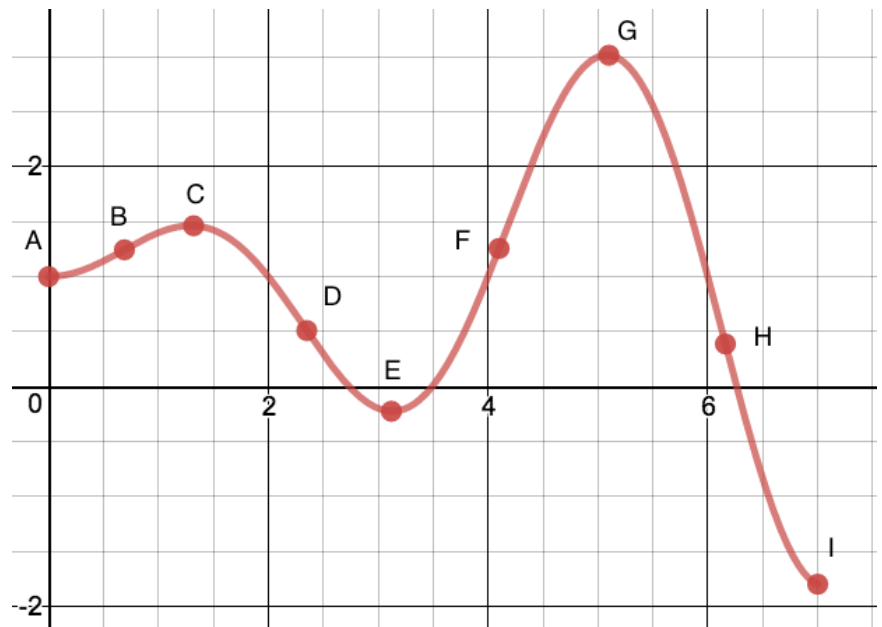
- The fundamental objects we study in calculus are *functions*.
  - What is a function?
  - List 4 different ways to describe a function. [Hint: one way is by using an equation. Find 3 more.]
  
- You will receive an full sheet of paper with this graph from *Observations Please*. After we discuss this as a class, your group will plot the curve tracing the path of point  $B$  as point  $A$  moves along  $f(x)$ .
  - Use the grid and a straightedge to make a table with values of 10 points.
  - Plot the points
  - Sketch the curve



3. Seven Easy Pieces: Part I

The graph at the right shows we can build graphs out of *single concavity monotonic pieces* of curves – pieces that do not change of direction (increasing, decreasing) and concavity (concave up, concave down). On your whiteboard, complete this table with:

- *sketches* of appropriate sample curve pieces at the 7 double question marks.
- Note that this graph does not contain examples of all 7 types.



|            | concave up | concave down | no concavity |
|------------|------------|--------------|--------------|
| increasing | ??         | ??           | ??           |
| decreasing | ??         | ??           | ??           |
| constant   | –          | –            | ??           |

- Assume  $s(x) = x^2$  and  $t(x) = x + 3$ . Evaluate  $s(t(3))$  and  $t(s(3))$ .
- The graph of function  $g$  goes through points  $(-1,1)$ ,  $(0,0)$ , and  $(1,1)$ . Find an equation for  $g$ . [Why is the question worded “an equation” and not “the equation?”]
- Demonstrate how to express  $\overline{.123}$  the ratio of two integers. Be sure to explain why your *method* is correct.
- Is  $\sqrt{2}$  a rational number? Explain how you know your answer is correct.