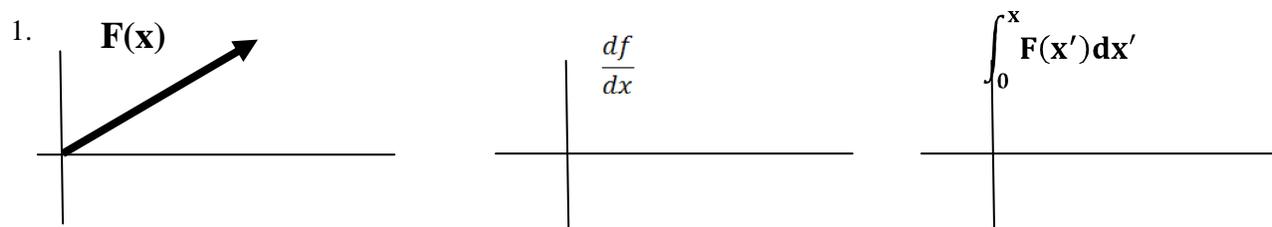


Student directions *Calculus Grapher* for Math

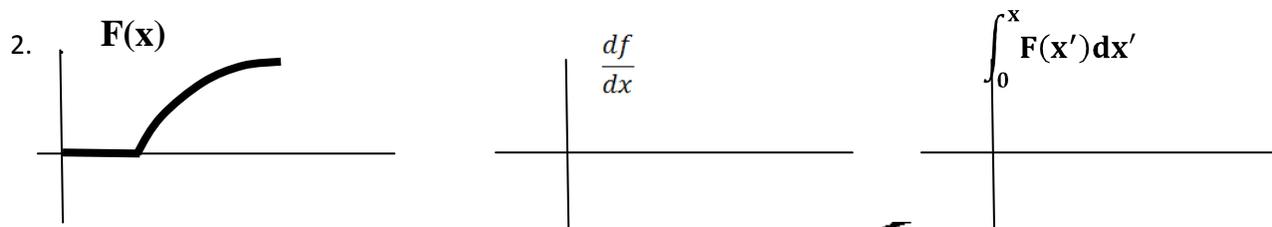
Learning Goals: Students will be able to:

- Given a function, sketch the derivative or integral curves
- Explain what the effect of a discontinuity in a function has on the derivative and the integral curves
- Explain the difference between smooth versus piecewise continuous function curve
- Be able to describe in words with illustrations what the derivative and integral functions demonstrate

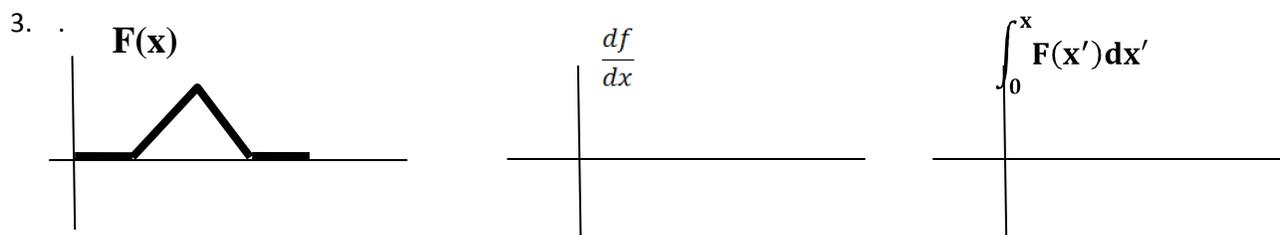
Directions: For each question, use a colored pencil to draw what you think the derivative and integral curves will look like. Then use a different color to correct your sketches after testing your ideas using *Calculus Grapher*.



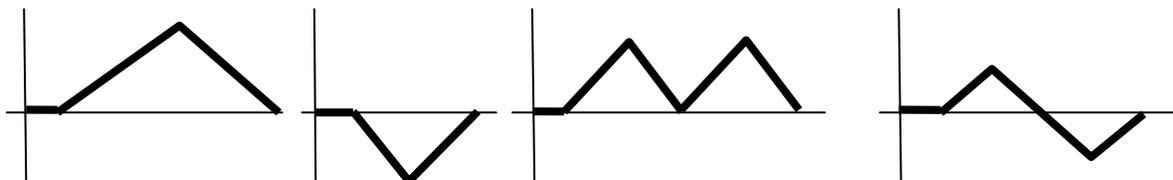
- Describe how using the **SHIFT** icon changes the derivative and integral curves.



- Describe how making the curve more steep like this  changes the derivative & integral curves



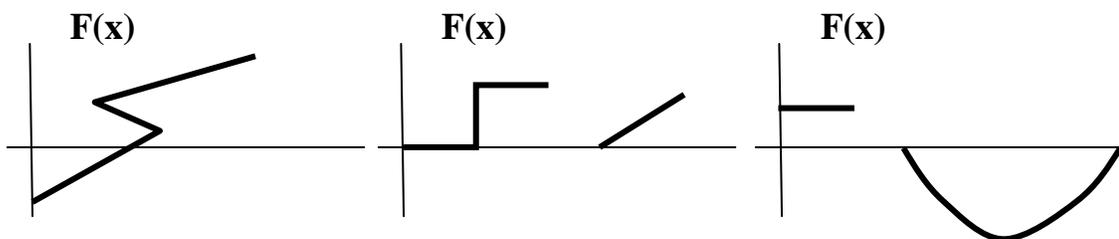
- How does repeating the same shape in different ways like taller, wider, repeated, or inverted change curves? Try many curves, but here's some ideas:



- If you use the **SMOOTH** button, what changes? You can press SMOOTH more than once.

Student directions *Calculus Grapher* for Math

4. Look at each graph, describe if the graph and/or the derivative and integral graphs make sense and explain your reasoning.



5. In your own words, what does the "Derivative of a function" mean?

6. In your own words, what does the "Integral of a function" mean?