Derivatives: Graphically: Visit http://j.mp/calcapps and click the following interactive applets.

12. Identify the derivative function

Keep trying until you get three correct attempts in a row.

Attempt	1	2	3	4	5	6	7	8	9
💯 or 💩									

13. Derivatives and Graph Transformations

Translations

2. Finish the sentence: If the graph of f(x)is shifted vertically by a units, then the graph of f ′(x) is...

4. Vertical shift of f(x): $\frac{d}{dx}(f(x)+a)=\frac{d}{dx}f(x)+\frac{d}{dx}a=\frac{d}{dx}f(x)=f'(x)$

Horizontal shift of f(x):

Vertical scaling:

2. Finish the sentence: If the f -graph is scaled vertically by a factor of k, then the graph of f ′...

3. Express the above idea mathematically: if we know that $\frac{d}{dx}f(x)=f'(x)$, then $\frac{d}{dx}(kf(x))=\ldots$

10. Try to Graph the Derivative Function

Keep trying until you get 90% accuracy or above. Try to do it for three different functions (hit "Reset the graph" to get a new f(x)).

Function 1	Final accuracy:
Function 2	Final accuracy:
Function 3	Final accuracy:

Important observations:

1. When f(x) has a "peak", what can you say about the derivative graph?
2. When f(x) has a valley, what can you say about the derivative graph?
3. If f ' (x) goes from negative to positive and passes through zero, is that a peak or a valley? Explain.

14. Identify a Function and its First and Second Derivatives

Keep trying until you get three correct attempts in a row. No guessing!

Attempt	1	2	3	4	5	6	7	8	9
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Observations:

15. Identify an Antiderivative Function

Here you are given the graph of the derivative, f ‘. You have to figure out which one is the original f. Keep trying until you get three correct attempts in a row.

Attempt	1	2	3	4	5	6	7	8	9
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20. Challenge! Reconstruct F from its First Derivative

Adjust the sliders to graph f(x) from the given f ‘ (x). The green dots are given to you as a guide. Read the “Explore” section below the applet for more guidance. Can you get above 90%? Take a screenshot or take a picture of the screen and email it to my Google account at nmhcde@gmail.com

Can you do it three times?!?!

Function 1	Final accuracy:
Function 2	Final accuracy:
Function 3	Final accuracy:

Vertical Tangents and Horizontal Tangents