MATH 201 Your name: _____

Chapter 2 checkpoint!

Chapter 1 scorecard:

Learning target:	DF1	DF2	DFa	DFb	AD2
Your confidence level before starting (0-5):					
Your confidence level after the quiz (0-5):					
The mark you earned on this attempt:	Success! Try again!	Success! Try again!	Success! Try again!	Success! Try again!	Success! Try again!

Chapter 2 scorecard:

Learning target:	DF3	DF4	DF5	DF6	DF7	DF8
Your confidence level before starting (0-5):						
Your confidence level after the quiz (0-5):						
The mark you earned on this attempt:	Success! Try again!	Success! Try again!	Success! Try again!	Success! Try again!	Success! Try again!	Success! Try again!

Before anything else, please do the following:

- Rank your confidence from 0-5 on each of the learning targets. 5 means "I could teach a whole class about this;" 0 means "I am genuinely not sure I have heard these words before."
- Write your name on this page and on each of the other pages of the quiz.

Then do the quiz! Some reminders:

- Open notes, closed computer.
- If you need more room to write, use the back of the same learning target page, or ask me for some scratch paper.
- Read the questions carefully and make sure you're answering each part.
- Use good grammar for derivative problems.
- Show all your work and explain all your thinking!

When you are done:

- Rank your confidence from 0-5 on each of the learning targets. 5 means "I absolutely nailed that question for sure;" 0 means "oof, I definitely didn't get that one."
- Make double sure your name is on every page, including any scratch paper.
- Hand in your work, separated by learning target.

Have fun and do your best! I believe in u ♡

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Learning target DF3, version 1

Demonstrate and explain how to find the derivative of the following functions. Be sure to write down which derivative rules (constant multiple, sum/difference, etc.) you are using in your work.

1. $f(x) = 2\cos(x) + 4e^x$

2. $h(t) = \sqrt[3]{t^4} + \dfrac{4}{t^4}$

3. $g(w) = 6w^3 - 2w^2 - 9w - 2$

4. $C(t) = \dfrac{\sqrt{\dfrac{\arcsin(2w+3)}{\arcsin(3w-2)} + e^{i\pi/2} \cdot \cos\left(-\dfrac{34}{\pi^2}\right)}}{\ln\Big(\cos\big(\sin(\cos q)\big)\Big) \cdot \arctan(7^z + z^7)}$ (Hint: Think.)

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Learning target DF4, version 1

Demonstrate and explain how to find the derivative of the following functions. Be sure to write down which derivative rules (product, quotient, sum and difference, etc.) you are using.

1. $g(x) = \dfrac{\ln(x)}{2x^2 + 6x - 3}$

2. $f(x) = \left(x^2 - 2x - 4\right)\cos(x)$

3. $h(t) = -\dfrac{3t^2 + 2t + 3}{t^3}$

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Learning target DF5, version 1

Demonstrate and explain how to find the derivative of the following functions. Be sure to write down which derivative rules (product, quotient, sum and difference, etc.) you are using.

1. $h(t) = 16\left(t + e^t + 2\right)^4$

2. $f(w) = 5\sin\left(w^{\frac{7}{3}}\right)$

3. $g(x) = 5\left(\sin(x)\right)^{\frac{7}{3}}$

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Learning target DF6, version 1

Demonstrate and explain how to find the derivative of the following functions. Be sure to write down which derivative rules (constant multiple, sum and difference, etc.) you are using.

1. $g(x) = \sqrt{\cos\left(-2x^4+5\right)}$

2. $f(w) = \left(\dfrac{6\left(w^6-1\right)}{5w+3}\right)^4$

3. $h(y) = \left(3y^2+7y\right)^4 y^{\frac{1}{4}}$

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Learning target DF7 and AD2, version 1

1. Use implicit differentiation to find $\frac{dy}{dx}$, aka y', for the equation $-7x^4 - 4\cos(y) = -3y^4 - 7$.

2. **(Also AD2)** The equation $x^3 - y^3 = 9xy$ (which makes a curve called the *folium of Descartes*) contains the point $(-2,4)$. Find an equation for the tangent line to this curve at this point, and use your tangent line to make a reasonable guess about the y-coordinate of the point $(-2.5, \_\_\_\_)$.

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Learning target DF8, version 1

Demonstrate and explain how to find the derivative of the following functions. Be sure to write down which derivative rules (product, quotient, sum and difference, etc.) you are using.

1. $m(u) = 6 \arcsin(u) \ln\left(u^4 + 9\right)$

2. $k(x) = \ln(4 \arcsin(x) + 7 \arctan(x))$

3. $h(w) = \dfrac{\arctan(2w)}{\ln(-2w)}$