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	Success!	Success!	Success!	Success!	Success!
on this attempt:	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	Success!	Success!	Success!	Success!	Success!	Success!
on this attempt:	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.
- 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 ♡

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

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

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

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

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

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.
$$h(t) = 16(t + e^t + 2)^4$$

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

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

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

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

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

Learning target DF7, 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 $(-2.5, \underline{\hspace{1cm}})$.

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

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

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