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[← -MAT 125 Calculus A - Fall 2026 \(all sections\), Fall 2026](#)

MAT125-HW8: inverse trig and logarithmic functions (Homework)

INSTRUCTOR

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Due Date: WED, OCT 28, 2026 9:00 AM EDT

REQUEST EXTENSION

Current Score: - / 20 POINTS | 0.0 %

Scoring and Assignment Information

QUESTION	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
POINTS	- / 1	- / 1	- / 1	- / 1	- / 1	- / 1	- / 1	- / 1	- / 1	- / 1	- / 1	- / 1	- / 1	- / 1	- / 1	- / 1	- / 1	- / 1	- / 1	- / 1

Assignment Submission

For this assignment, you submit answers by question parts. The number of submissions remaining for each question part only changes if you submit or change the answer.

Assignment Scoring

Your last submission is used for your score.

1. [- / 1 Points]

DETAILS

MY NOTES

ASK YOUR TEACHER

SCalcCC5 3.6.001.MI.

Find the exact value of each expression. (Enter your answer in radians.)

(a) $\sin^{-1}\left(-\frac{1}{2}\right)$

(b) $\cos^{-1}\left(\frac{1}{2}\right)$

2. [- / 1 Points]

DETAILS

MY NOTES

ASK YOUR TEACHER

SCalcCC5 3.6.010.

Simplify the expression.

$$\tan(\sin^{-1}(x))$$

3. [- / 1 Points]

DETAILS

MY NOTES

ASK YOUR TEACHER

SCalcCC5 3.6.011.

Simplify the expression.

$$\sin(\tan^{-1}(x))$$

4. [- / 1 Points]

DETAILS

MY NOTES

ASK YOUR TEACHER

SCalcCC5 3.6.017.

Find the derivative of the function.

$$y = (\tan^{-1}(8x))^2$$

$$y' =$$

5. [- / 1 Points]

DETAILS

MY NOTES

ASK YOUR TEACHER

SCalcCC5 3.6.019.MI.

Find the derivative of the function.

$$y = \sin^{-1}(4x + 1)$$

$$y' =$$

6. [- / 1 Points]

DETAILS

MY NOTES

ASK YOUR TEACHER

SCalcCC5 3.6.027.

Find the derivative of the function.

$$y = \sqrt{1 - x^2} - x \cos^{-1}(x)$$

$$y' =$$

7. [- / 1 Points]

DETAILS

MY NOTES

ASK YOUR TEACHER

SCalcCC5 3.7.002.

Differentiate the function.

Differentiate the function.

$$f(x) = 4x \ln(2x) - 4x$$

$$f'(x) = \boxed{}$$

8. [- / 1 Points]

DETAILS

MY NOTES

ASK YOUR TEACHER

SCalcCC5 3.7.004.MI.

Differentiate the function.

$$f(x) = \sin(9 \ln(x))$$

$$f'(x) = \boxed{}$$

9. [- / 1 Points]

DETAILS

MY NOTES

ASK YOUR TEACHER

SCalcCC5 3.7.006.

Differentiate the function.

$$f(x) = \ln\left(\frac{1}{x^5}\right)$$

$$f'(x) = \boxed{}$$

10. [- / 1 Points]

DETAILS

MY NOTES

ASK YOUR TEACHER

SCalcCC5 3.7.007.

Differentiate the function.

$$y = \frac{10}{\ln(x)}$$

$$y' = \boxed{}$$

11. [- / 1 Points]

DETAILS

MY NOTES

ASK YOUR TEACHER

SCalcCC5 3.7.014.

Differentiate the function.

$$G(y) = \ln\left(\frac{(2y + 1)^5}{\sqrt{y^2 + 1}}\right)$$

$$G'(y) = \boxed{}$$

12. [- / 1 Points]

DETAILS

MY NOTES

ASK YOUR TEACHER

SCalcCC5 3.7.020.

Differentiate the function.

$$y = \ln(e^{-x} + xe^{-x})$$

$$y' = \boxed{}$$

13. [- / 1 Points]

DETAILS

MY NOTES

ASK YOUR TEACHER

SCalcCC5 3.7.028.

Use logarithmic differentiation to find the derivative of the function.

$$y = (x^5 + 2)^2(x^3 + 4)^4$$

$$y'(x) = \boxed{}$$

14. [- / 1 Points]

DETAILS

MY NOTES

ASK YOUR TEACHER

SCalcCC5 3.7.030.

Use logarithmic differentiation to find the derivative of the function.

$$y = \sqrt{\frac{x-2}{x^4+5}}$$

$$y'(x) = \boxed{}$$

15. [- / 1 Points]

DETAILS

MY NOTES

ASK YOUR TEACHER

SCalcCC5 3.7.032.

Use logarithmic differentiation to find the derivative of the function.

$$y = x^{4x}$$

$$y'(x) = \boxed{}$$

16. [- / 1 Points]

DETAILS

MY NOTES

ASK YOUR TEACHER

SCalcCC5 3.7.040.

Find y' and y'' .

$$y = x^2 \ln(7x)$$

$$y' = \boxed{}$$

$$y'' = \boxed{}$$

17. [- / 1 Points]

DETAILS

MY NOTES

ASK YOUR TEACHER

SCalcCC5 3.7.044.

Find y' and y'' .

$$y = \ln(|\csc(x)|)$$

$$y' = \boxed{}$$

$$y'' = \boxed{}$$

18. [- / 1 Points]

DETAILS

MY NOTES

ASK YOUR TEACHER

SCalcCC5 3.7.047.

Differentiate f and find the domain of f . (Enter the domain in interval notation.)

$$f(x) = \sqrt{9 + \ln(x)}$$

derivative $f'(x) = \boxed{}$

domain $\boxed{}$

19. [- / 1 Points]

DETAILS

MY NOTES

ASK YOUR TEACHER

SCalcCC5 3.7.052.

Find an equation of the tangent line to the curve at the given point.

$$y = \ln(x^2 - 8x + 1), \quad (8, 0)$$

$$y = \boxed{}$$

20. [- / 1 Points]

DETAILS

MY NOTES

ASK YOUR TEACHER

SCalcCC5 3.7.059.

For which value of x will the graph of $y = \frac{\ln(x)}{x}$ have a horizontal tangent line?

☐ $\frac{e^2}{2}$

☐ e

☐ $\frac{2}{e^2}$

☐ e^2

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