3.6 Hmwk - Derivatives of Logarithmic Functions (Homework)

INSTRUCTOR
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Past Due **Due Date:** THU, MAR 19, 2026 11:59 PM CDT

Current Score: 20 / 20 POINTS | 100.0 %

Due date has passed. No changes can be made without an approved extension request.
You may not be granted an extension if you have already viewed the answer key.

VIEW ANSWER KEY

Scoring and Assignment Information

QUESTION	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
POINTS	2 / 2	2 / 2	1 / 1	1 / 1	2 / 2	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	2 / 2	1 / 1	2 / 2	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 best submission for each question part is used for your score.

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1. **[2 / 2 Points]**

DETAILS | MY NOTES | PREVIOUS ANSWERS | ASK YOUR TEACHER | PRACTICE ANOTHER

SCalcET9 3.6.011.

Differentiate the function.

$$F(t) = (\ln(t))^2 \cos(t)$$

$F'(t) =$

$$2ln(t)cos(t)t−(ln(t))2sin(t)$$

✔ Well done!

Resources

Read It Watch It

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2. **[2 / 2 Points]**

DETAILS | MY NOTES | PREVIOUS ANSWERS | ASK YOUR TEACHER | PRACTICE ANOTHER

SCalcET9 3.6.076.

Find the derivative of the function.

$$y = \sin^{-1}(\cos^{-1}(t))$$

$y' =$

$$−1√1−t2√1−(cos−1(t))2$$

✔ Great job.

Resources

Read It

3. **[1 / 1 Points]**

DETAILS | MY NOTES | PREVIOUS ANSWERS | ASK YOUR TEACHER

PRACTICE ANOTHER

SCalcET9 3.6.075.

Find the derivative of the function.

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

$y' =$

$$-cos-1(x)$$

✔ Good job!

Resources

Read It

4. **[1 / 1 Points]**

DETAILS | MY NOTES | PREVIOUS ANSWERS | ASK YOUR TEACHER

PRACTICE ANOTHER

SCalcET9 3.6.064.

Find the derivative of the function.

$$g(x) = \sec^{-1}(3e^x)$$

$g'(x) =$

$$1\sqrt{9e2x-1}$$

✔ Nicely done.

Resources

Read It

5. **[2 / 2 Points]**

DETAILS | MY NOTES | PREVIOUS ANSWERS | ASK YOUR TEACHER | PRACTICE ANOTHER

SCalcET9 3.6.067.

Find the derivative of the function.

$$y = (\tan^{-1}(7x))^2$$

$y' =$

$$14\tan^{-1}(7x)1+49x2$$

✔ Nice!

Resources

Read It Watch It

6. **[1 / 1 Points]**

DETAILS | MY NOTES | PREVIOUS ANSWERS | ASK YOUR TEACHER | PRACTICE ANOTHER

SCalcET9 3.6.054.

Use logarithmic differentiation to find the derivative of the function.

$$y = (\sin(7x))^{\ln(x)}$$

$y'(x) =$

$$(\sin(7x))\ln(x)(\ln(\sin(7x))x+7\ln(x)\cot(7x))$$

✔ Impressive work!

Resources

Read It

7. **[1 / 1 Points]**

DETAILS | MY NOTES | PREVIOUS ANSWERS | ASK YOUR TEACHER | PRACTICE ANOTHER

SCalcET9 3.6.053.

Use logarithmic differentiation to find the derivative of the function.

$$y = (\cos(3x))^x$$

$y'(x) =$
$$(\cos(3x))x(\ln(\cos(3x))-3x\tan(3x))$$

✔ Amazing job!

Resources

Read It Watch It

8. **[1 / 1 Points]**

DETAILS | MY NOTES | PREVIOUS ANSWERS | ASK YOUR TEACHER | PRACTICE ANOTHER

SCalcET9 3.6.084.

If $f(2) = 3$ and $f'(2) = \frac{4}{5}$, use the formula $(f^{-1})'(x) = \frac{1}{f'(f^{-1}(x))}$ to find $(f^{-1})'(3)$.

$(f^{-1})'(3) =$ 5/4 ✔ That's right!

Resources

Read It

9. **[1 / 1 Points]**

DETAILS | MY NOTES | PREVIOUS ANSWERS | ASK YOUR TEACHER | PRACTICE ANOTHER

SCalcET9 3.6.063.MI.

Find the derivative of the function.

$$f(x) = \sin^{-1}(6x)$$

$f'(x) =$

$$6\sqrt{1-36x^2}$$

Great job!

Resources

Read It Tutorial

10. **[1 / 1 Points]**

DETAILS | MY NOTES | PREVIOUS ANSWERS | ASK YOUR TEACHER | PRACTICE ANOTHER

SCalcET9 3.6.071.

Find the derivative of the function.

$$f(z) = e^{\arcsin(z^8)}$$

$f'(z) =$

$$8z^7 e^{\arcsin(z^8)}\sqrt{1-z^{16}}$$

Very nice!

Resources

Read It

11. **[2 / 2 Points]**

DETAILS | MY NOTES | PREVIOUS ANSWERS | ASK YOUR TEACHER

PRACTICE ANOTHER

SCalcET9 3.6.017.

Differentiate the function.

$$T(z) = 6^z \log_6(z)$$

$T'(z) =$

$$6z\ln(z)+6z\ln(6)$$

Great work.

Resources

Read It

12. **[1 / 1 Points]**

DETAILS | MY NOTES | PREVIOUS ANSWERS | ASK YOUR TEACHER

PRACTICE ANOTHER

SCalcET9 3.6.048.

Use logarithmic differentiation to find the derivative of the function.

$$y = \sqrt{x}e^{x^2 - x}(x + 4)^{3/7}$$

$y'(x) =$

$$\sqrt{x}ex2-x(x+4)3/7(12x+2x-1+37(x+4))$$

Fantastic job!

Resources

Read It

13. **[2 / 2 Points]**

DETAILS | MY NOTES | PREVIOUS ANSWERS | ASK YOUR TEACHER | PRACTICE ANOTHER

SCalcET9 3.6.085.

If $f(x) = 8x + e^{5x}$, use the formula $(f^{-1})'(x) = \dfrac{1}{f'(f^{-1}(x))}$ to find $(f^{-1})'(1)$.

$(f^{-1})'(1) =$ 1/13 ✔ Very nice!

Resources

Read It

14. **[1 / 1 Points]**

DETAILS | MY NOTES | PREVIOUS ANSWERS | ASK YOUR TEACHER | PRACTICE ANOTHER

SCalcET9 3.6.018.

Differentiate the function.

$$g(t) = \ln\left(\frac{t(t^2+1)^6}{\sqrt[5]{2t-1}}\right)$$

$g'(t) =$

$$1t+12tt2+1-25(2t-1)$$

✔ Way to go!

Resources

Read It

15. **[1 / 1 Points]**

DETAILS | MY NOTES | PREVIOUS ANSWERS | ASK YOUR TEACHER | PRACTICE ANOTHER

SCalcET9 3.6.023.

Differentiate the function.

$$h(x) = e^{x^9} + \ln(x)$$

$h'(x) =$

$$ex9(1+9x9)

That's it!

Resources

Read It

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