3.5 Hmwk - Implicit Differentiation (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	1 / 1	2 / 2	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	2 / 2	1 / 1	1 / 1	1 / 1	2 / 2	3 / 3	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. **[1 / 1 Points]**

DETAILS | MY NOTES | PREVIOUS ANSWERS | ASK YOUR TEACHER

PRACTICE ANOTHER

SCalcET9 3.5.010.

Find $\frac{dy}{dx}$ by implicit differentiation.

$$xe^y = x - y$$

$\frac{dy}{dx}$ =

$$1-eyxey+1

Amazing job!

Resources

Read It

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

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

SCalcET9 3.5.040.EP.

Find y' and y'' by implicit differentiation.

$$x^2 + xy + y^2 = 7$$

y' = $$−2x+yx+2y

✔ Nice work!

y'' = $$−42(x+2y)3

✔ Good job!

Resources

Read It Watch It

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

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

SCalcET9 3.5.026.

Regard y as the independent variable and x as the dependent variable and use implicit differentiation to find $\frac{dx}{dy}$.

$$y \sec(x) = 5x \tan(y)$$

$\frac{dx}{dy} =$

$$5xsec2(y)−sec(x)ysec(x)tan(x)−5tan(y)$$

Excellent!

Resources

Read It

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

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

SCalcET9 3.5.022.

Find $\frac{dy}{dx}$ by implicit differentiation.

$$\sin(x^2 + y^2) = xe^y$$

$\frac{dy}{dx} =$

$$ey−2xcos(x2+y2)2ycos(x2+y2)−xey$$

Way to go!

Resources

Read It

5. **[1 / 1 Points]**

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

SCalcET9 3.5.023.

If $f(x) + x^2[f(x)]^5 = 34$ and $f(1) = 2$, find $f'(1)$.

$f'(1) =$ -64/81 ✓ Great work!

Resources

Read It Watch It

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

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

SCalcET9 3.5.018.

Find $\frac{dy}{dx}$ by implicit differentiation.

$$\cos(x)\sin(y) = x^2 - 9y$$

$\frac{dy}{dx} =$

$$2x+sin(x)sin(y)cos(x)cos(y)+9$$

✓ Amazing job.

Resources

Read It

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

DETAILS | MY NOTES | PREVIOUS ANSWERS | ASK YOUR TEACHER

PRACTICE ANOTHER

SCalcET9 3.5.017.

Find $\frac{dy}{dx}$ by implicit differentiation.

$$7xe^y + ye^x = 6$$

$\frac{dy}{dx}$ =

$$-7ey+yex7xey+ex$$

Awesome job!

Resources

Read It

8. **[2 / 2 Points]**

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

SCalcET9 3.5.041.EP.

Find y' and y'' by implicit differentiation.

$$\cos(y) + \sin(x) = 1$$

$y' =$ $$cos(x)sin(y)

That's right!

$y'' =$ $$−sin(x)sin2(y)−cos2(x)cos(y)sin3(y)

That's it!

Resources

Read It

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

DETAILS | MY NOTES | PREVIOUS ANSWERS | ASK YOUR TEACHER

PRACTICE ANOTHER

SCalcET9 3.5.021.

Find $\frac{dy}{dx}$ by implicit differentiation.

$$e^{x/y} = 5x - y$$

$\frac{dy}{dx}$ =

$$5y2−yex/yy2−xex/y$$

✔ Great work!

Resources

Read It Watch It

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

DETAILS | MY NOTES | PREVIOUS ANSWERS | ASK YOUR TEACHER

PRACTICE ANOTHER

SCalcET9 3.5.024.

If $g(x) + x\cos(g(x)) = x^3$, find $g'(0)$.

$g'(0)$ = -1 ✔ Impressive work.

Resources

Read It

11. **[1 / 1 Points]**

DETAILS | MY NOTES | PREVIOUS ANSWERS | ASK YOUR TEACHER

PRACTICE ANOTHER

SCalcET9 3.5.011.

Find $\frac{dy}{dx}$ by implicit differentiation.

$$\sin(x) + \cos(y) = 5x - 2y$$

$\frac{dy}{dx}$ =

$$5-\cos(x)2-\sin(y)$$

Good work!

Resources

Read It

12. **[2 / 2 Points]**

DETAILS | MY NOTES | PREVIOUS ANSWERS | ASK YOUR TEACHER

PRACTICE ANOTHER

SCalcET9 3.5.016.

Find $\frac{dy}{dx}$ by implicit differentiation.

$$\cos(xy) = \sin(x + y)$$

$\frac{dy}{dx}$ =

$$-\cos(x+y)+y\sin(xy)x\sin(xy)+\cos(x+y)$$

Nice work.

Resources

Read It

13. **[3 / 3 Points]**

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

SCalcET9 3.5.043.EP.

Consider the following equation.

$$xy + 4e^{y} = 4e$$

Find the value of y at the point where $x = 0$.

$y =$

$$1

✔ Fantastic job!

Find the value of y' at the point where $x = 0$.

$y' =$

$$-14e

✔ Awesome job!

Find the value of y'' at the point where $x = 0$.

$y'' =$

$$116e2

✔ Exactly!

Resources

Read It Watch It

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

DETAILS | MY NOTES | PREVIOUS ANSWERS | ASK YOUR TEACHER

PRACTICE ANOTHER

SCalcET9 3.5.012.

Find $\frac{dy}{dx}$ by implicit differentiation.

$$e^x \cos(y) = x + y$$

$\frac{dy}{dx}$ =

$$excos(y)−11+exsin(y)$$

Great work!

Resources

Read It

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

DETAILS | MY NOTES | PREVIOUS ANSWERS | ASK YOUR TEACHER

PRACTICE ANOTHER

SCalcET9 3.5.013.

Find $\frac{dy}{dx}$ by implicit differentiation.

$$\cos(x + y) = \sin(x) + \sin(y)$$

$\frac{dy}{dx}$ =

$$−sin(x+y)+cos(x)sin(x+y)+cos(y)$$

Nice work.

Resources

Read It