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

MAT125 HW7 - Implicit Differentiation (Homework)



INSTRUCTOR

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Due Date: WED, OCT 21, 2026 6:00 AM PDT



REQUEST EXTENSION

Current Score: - / 15 POINTS | 0.0 %

Scoring and Assignment Information



QUESTION	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
POINTS	- / 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

Consider the following equation.

$$8x^2 - y^2 = 4$$

- (a) Find y' by implicit differentiation.

$$y' = \boxed{}$$

- (b) Solve the equation explicitly for y and differentiate to get y' in terms of x .

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

2. [- / 1 Points]

DETAILS

MY NOTES

ASK YOUR TEACHER

SCalcCC5 3.5.006.

What is the slope of the tangent line to the circle with equation $x^2 + y^2 = a^2$, where $a \neq 0$?

☐ $-\frac{y}{x}$

☐ $\frac{x}{y}$

☐ $-\frac{x}{y}$

☐ $\frac{y}{x}$

3. [- / 1 Points]

DETAILS

MY NOTES

ASK YOUR TEACHER

SCalcCC5 3.5.008.MI.

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

$$x^2 - 14xy + y^2 = 14$$

$$\frac{dy}{dx} = \boxed{}$$

4. [- / 1 Points]

DETAILS

MY NOTES

ASK YOUR TEACHER

SCalcCC5 3.5.009.

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

$$8x^2 + 9xy - y^2 = 5$$

$$\frac{dy}{dx} = \boxed{}$$

5. [- / 1 Points]

DETAILS

MY NOTES

ASK YOUR TEACHER

SCalcCC5 3.5.018.

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

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

$$\frac{dy}{dx} = \boxed{}$$

6. [- / 1 Points]

DETAILS

MY NOTES

ASK YOUR TEACHER

SCalcCC5 3.5.021.

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

$$x \sin(y) + y \sin(x) = 9$$

$$y' = \boxed{}$$

7. [- / 1 Points]

DETAILS

MY NOTES

ASK YOUR TEACHER

SCalcCC5 3.5.026.

If $f(x) + x^2[f(x)]^4 = 18$ and $f(1) = 2$, find $f'(1)$.

$$f'(1) = \boxed{}$$

8. [- / 1 Points]

DETAILS

MY NOTES

ASK YOUR TEACHER

SCalcCC5 3.5.028.

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

$$x^4y^2 - x^4y + 2xy^3 = 0$$

$$\frac{dx}{dy} = \boxed{}$$

9. [- / 1 Points]

DETAILS

MY NOTES

ASK YOUR TEACHER

SCalcCC5 3.5.030.

Use implicit differentiation to find an equation of the tangent line to the curve at the given point.

$$x^2y + 2x = 24, \quad (3, 2)$$

 $y =$

10. [- / 1 Points]

DETAILS

MY NOTES

ASK YOUR TEACHER

SCalcCC5 3.5.031.

Use implicit differentiation to find an equation of the tangent line to the curve at the given point.

$$y \sin(8x) = x \cos(2y), \quad (\pi/2, \pi/4)$$

 $y =$

11. [- / 1 Points]

DETAILS

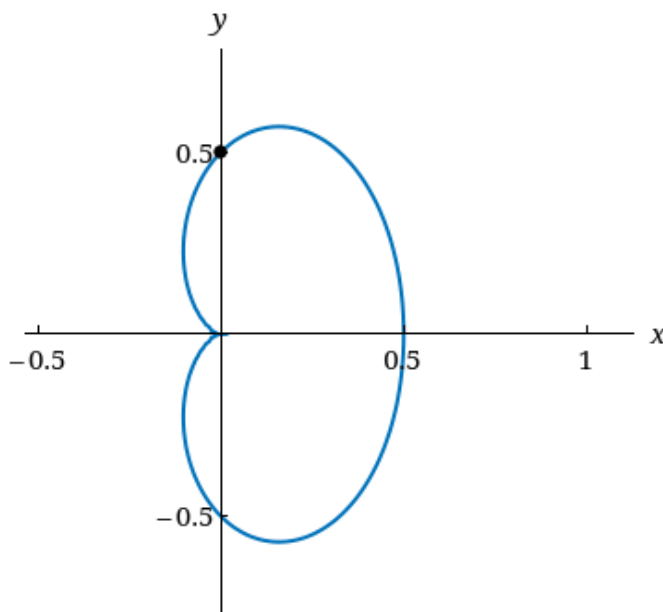
MY NOTES

ASK YOUR TEACHER

SCalcCC5 3.5.035.MI.

Use implicit differentiation to find an equation of the tangent line to the curve at the given point.

$$x^2 + y^2 = (4x^2 + 2y^2 - x)^2, \quad \left(0, \frac{1}{2}\right) \text{ (cardioid)}$$



12. [- / 1 Points]

DETAILS

MY NOTES

ASK YOUR TEACHER

SCalcCC5 3.5.036.EP.

Use implicit differentiation to find y' .

$$x^{2/3} + y^{2/3} = 4$$

$$y' = \text{[input box]}$$

Find an equation of the line tangent to the given curve at the given point $(-3\sqrt{3}, 1)$.

13. [- / 1 Points]

DETAILS

MY NOTES

ASK YOUR TEACHER

SCalcCC5 3.5.041.

Which of the following is an equation of the tangent line to the graph of $x^2 - 48x^3y + y^3 = -127$ at the point $(1, 4)$?

- ☐ $x = 1$
- ☐ $y = 4$
- ☐ $y = 20x - 16$
- ☐ The curve has no tangent line at that point.

14. [- / 1 Points]

DETAILS

MY NOTES

ASK YOUR TEACHER

SCalcCC5 3.5.049.EP.

Find y' and y'' by implicit differentiation.

$$x^2 + xy + y^2 = 8$$

$$y' = \text{[input box]}$$

$$y'' = \text{[input box]}$$

15. [- / 1 Points]

DETAILS

MY NOTES

ASK YOUR TEACHER

13. [- / 1 Points]

DETAILS

MY NOTES

ASK YOUR TEACHER

SCalcCC5 3.5.048.

Find y'' by implicit differentiation. Simplify where possible.

$$x^2 + 5y^2 = 5$$

 $y'' =$ [Home](#)[My Assignments](#)[Request Extension](#)

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