

Calculus Chapter 3 Test Sample Questions

Lesson 288 | Calculus AB | Product and quotient rules • Chain rule • Implicit differentiation

<https://www.youtube.com/watch?v=Mcc9SL9105k>

Related review: exact coverage needs teacher confirmation.

Name: _____ Date: _____ Show your reasoning.

01

Differentiate $f(x) = (x^2 + 6)/(x + 2)$ on the interior of its real domain.

02

Differentiate $f(x) = (13x^2 + 5)^2$ on the interior of its real domain.

03

For $x^2 + 13y^2 = 14$, find dy/dx and the slope at any point with $y \neq 0$.

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Name: _____ Date: _____ Show your reasoning.

04

Differentiate $f(x) = (x^2 + 7)/(x + 2)$ on the interior of its real domain.

05

Differentiate $f(x) = (11x^2 + 13)^6$ on the interior of its real domain.

06

For $x^2 + 10y^2 = 9$, find dy/dx and the slope at any point with $y \neq 0$.

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01

Differentiate $f(x) = (x^2 + 6)/(x + 2)$ on the interior of its real domain.

Use the product rule or quotient rule, then simplify. $f'(x) = (-x^2 + 2 \cdot x \cdot (x + 2) - 6)/(x + 2)^2$.

02

Differentiate $f(x) = (13 \cdot x^2 + 5)^2$ on the interior of its real domain.

Differentiate the outer power and multiply by the derivative of the inner polynomial.

$$f'(x) = 676 \cdot x^3 + 260 \cdot x.$$

03

For $x^2 + 13y^2 = 14$, find dy/dx and the slope at any point with $y \neq 0$.

Differentiate implicitly: $2x + 26y \cdot y' = 0$. Thus $y' = -x/(13y)$, valid where $y \neq 0$ on the curve.

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04

Differentiate $f(x) = (x^2 + 7)/(x + 2)$ on the interior of its real domain.

Use the product rule or quotient rule, then simplify. $f'(x) = (-x^2 + 2 \cdot x \cdot (x + 2) - 7)/(x + 2)^2$.

05

Differentiate $f(x) = (11 \cdot x^2 + 13)^6$ on the interior of its real domain.

Differentiate the outer power and multiply by the derivative of the inner polynomial.

$$f'(x) = 132 \cdot x \cdot (11 \cdot x^2 + 13)^5.$$

06

For $x^2 + 10y^2 = 9$, find dy/dx and the slope at any point with $y \neq 0$.

Differentiate implicitly: $2x + 20y \cdot y' = 0$. Thus $y' = -x/(10y)$, valid where $y \neq 0$ on the curve.