Differentiation Rules Quiz Answer Key PDF

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Which of the following functions have a derivative of zero? (Select all that apply)

A. f(x) = 5 ✓

B. f(x) = x^0

C. f(x) = ln(1) ✓

D. f(x) = e^0 ✓

What is the derivative of sin(x)?

A. -sin(x)

B. cos(x) ✓

C. tan(x)

D. -cos(x)

What is the derivative of a constant function f(x) = 7?

A. 7

B. 0 ✓

C. 1

D. Undefined

Which of the following are derivatives of inverse trigonometric functions? (Select all that apply)

A. \frac{ d }{ dx }(arcsin x) = \frac{ 1 }{ \sqrt{1-x^2}} ✓

B. \frac{ d }{ dx }(arccos x) = \frac{ 1 }{ \sqrt{1-x^2}}

C. \frac{ d }{ dx }(arctan x) = \frac{ 1 }{ 1+x^2} ✓

D. \frac{ d }{ dx }(arccos x) = -\frac{ 1 }{ \sqrt{1-x^2}} ✓

Which rules are used in differentiating f(x) = x^2 * e^x? (Select all that apply)

A. Power Rule ✓
B. Product Rule ✓
C. Chain Rule
D. Quotient Rule

Which of the following are derivatives of trigonometric functions? (Select all that apply)

A. \frac{ d }{ dx }(sin x) = cos x ✓
B. \frac{ d }{ dx }(cos x) = sin x
C. \frac{ d }{ dx }(tan x) = sec^2 x ✓
D. \frac{ d }{ dx }(sec x) = sec x tan x ✓

What is the derivative of ln(x)?

A. x
B. 1/x ✓
C. ln(x)
D. e^x

What is the derivative of e^x?

A. e^x ✓
B. x * e^{x-1}
C. x * e^x
D. ln(x)

Which rule is used to differentiate the function f(x) = x^5?

A. Product Rule
B. Quotient Rule
C. Power Rule ✓
D. Chain Rule

Which rule would you apply to differentiate f(x) = 3x^2 + 4x?

A. Constant Rule
B. Sum Rule ✓

C. Product Rule
D. Quotient Rule

Which of the following functions require the chain rule for differentiation? (Select all that apply)

A. f(x) = (3x^2 + 2)^5 ✓
B. f(x) = x^3 + 4x
C. f(x) = sin(2x) ✓
D. f(x) = e^{3x} ✓

Which rule is used to differentiate f(x) = x^3 * ln(x)?

A. Chain Rule
B. Quotient Rule
C. Product Rule ✓
D. Power Rule

Which rules are applicable for differentiating f(x) = ln(x) / x^2? (Select all that apply)

A. Quotient Rule ✓
B. Product Rule
C. Chain Rule
D. Power Rule ✓

Which rule is used to differentiate f(x) = x^2 / (x+1)?

A. Power Rule
B. Chain Rule
C. Quotient Rule ✓
D. Product Rule