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Differentiation Rules Quiz PDF

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

☐ f(x) = 5
☐ f(x) = x^0
☐ f(x) = ln(1)
☐ f(x) = e^0

What is the derivative of sin(x)?

◯ -sin(x)
◯ cos(x)
◯ tan(x)
◯ -cos(x)

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

◯ 7
◯ 0
◯ 1
◯ Undefined

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

☐ \frac{ d }{ dx }(arcsin x) = \frac{ 1 }{ \sqrt{1-x^2}}
☐ \frac{ d }{ dx }(arccos x) = \frac{ 1 }{ \sqrt{1-x^2}}
☐ \frac{ d }{ dx }(arctan x) = \frac{ 1 }{ 1+x^2}
☐ \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)

☐ Power Rule
☐ Product Rule

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☐ Chain Rule
☐ Quotient Rule

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

☐ \frac{ d }{ dx }(sin x) = cos x
☐ \frac{ d }{ dx }(cos x) = sin x
☐ \frac{ d }{ dx }(tan x) = sec^2 x
☐ \frac{ d }{ dx }(sec x) = sec x tan x

What is the derivative of ln(x)?

◯ x
◯ 1/x
◯ ln(x)
◯ e^x

What is the derivative of e^x?

◯ e^x
◯ x * e^{x-1}
◯ x * e^x
◯ ln(x)

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

◯ Product Rule
◯ Quotient Rule
◯ Power Rule
◯ Chain Rule

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

◯ Constant Rule
◯ Sum Rule
◯ Product Rule
◯ Quotient Rule

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

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☐ f(x) = (3x^2 + 2)^5
☐ f(x) = x^3 + 4x
☐ f(x) = sin(2x)
☐ f(x) = e^{3x}

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

○ Chain Rule
○ Quotient Rule
○ Product Rule
○ Power Rule

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

☐ Quotient Rule
☐ Product Rule
☐ Chain Rule
☐ Power Rule

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

○ Power Rule
○ Chain Rule
○ Quotient Rule
○ Product Rule

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