

King Fahd University of Petroleum and Minerals

Department of Math & Stat

Math 101.18 Quiz V(i) Term 081

Name: _____ ID#: _____

Show all your work in every problem.

1. Find

(a) $(\cosh x + \sinh x)^n$.

(b) y' at $(\sqrt[3]{e}, 0)$ if $e^y = \ln(x^3 + 3y)$.

2. Where is $f(x) = |\ln x|$ $x > 0$ not differentiable?

3. Find an equation of the tangent line to $y = (\sin x)^x$ at $x = \frac{\pi}{2}$.

4. Mark each of the following as true or false.

(a) $\frac{d}{dx}e^7 = e^7$.

(b) If $y^3 = x^3$, then $y' = x$.

(c) $\lim_{x \rightarrow \infty} \left(1 + \frac{1}{5x}\right)^{5x} = e$.

(d) If $y = \sin(x^3)$, then $y'' = -\sin(x^3)$

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Math 101.18 Quiz V(ii) Term 081

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Show all your work in every problem.

1. Find

(a) $(\cosh x + \sinh x)^n$.

(b) y' at $(\sqrt[3]{e}, 0)$ if $e^y = \ln(x^3 + 3y)$.

2. Where is $f(x) = |\ln x|$ $x > 0$ not differentiable?

3. Find an equation of the tangent line to $y = (\sin x)^x$ at $x = \frac{\pi}{2}$.

4. Mark each of the following as true or false.

(a) $\frac{d}{dx}3^7 = 73^6$.

(b) If $e^x = \ln y$, then $e^x = \frac{1}{y}$.

(c) $\lim_{x \rightarrow \infty} \left(1 - \frac{1}{7x}\right)^{-7x} = e$.

(d) If $y = \sinh x^2$, then $y'' = \sinh x^2$.

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Math 101.18 Quiz VI Term 081

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Show all your work in every problem.

1. Find $f^{(n)}(x)$ if $f(x) = \sinh x$.

2. Given that $f'(x) = \frac{x}{x^2 + 1}$ and $g(x) = \sqrt{3x - 1}$, find $F'(x)$ if $F(x) = f(g(x))$.

3. Find the values of a and b for the curve $x^2y + ay^2 = b$ if $(1, 1)$ is on the graph of the equation and the tangent line at $(1, 1)$ has equation $4x + 3y = 7$.