

Your Name:

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1. Given the function $h(z) = \tan\left(\frac{\pi z}{8}\right)$, find its instantaneous rate of change at $z = 4$.

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2. $f(x) = \cos(2x + \pi)$. Find $f''(x)$.
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3. Evaluate $g(r) = \frac{1}{5}r^5 - 8r^2$. Find $g''(2)$.

4. Evaluate $\frac{d}{d\theta}[\csc(\theta^2)]$.

5. Find $\lim_{h \rightarrow 0} \frac{f(x+h) - f(x)}{h}$ where $f(x) = -\cot(x)$.

6. Find the derivative of $y = \frac{2x^2 - x}{x + 1}$.
