DATE: _____

Chain Rule Practice

1. Find $\left.\frac{dy}{dx}\right|_{x=\frac{\pi}{2}}$ given $y = \tan(\cos x)$

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2. If $y = 2\cos\frac{x}{2}$, then find $\frac{d^2y}{dx^2}$.

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3. Let the velocity of a particle be defined as $v(t) = \sin^2 \pi t$, where t is measured in seconds and $v(t)$ is measure in feet per second. Find the acceleration of the particle at $t = 2$.

4. Find the slope of the line tangent to $f(x) = x(1-2x)^3$ at $(1,-1)$.

5. Find the equation of the tangent line to the graph of $f(x) = \sqrt{\sin x}$ at $x = \frac{\pi}{6}$.