

BC Calculus – Chain Rule Challenge

Name: _____

Warming Up:

1. The displacement of a particle on a vibrating string is given by the equation $s(t) = 10 + \frac{1}{4}\sin(10\pi t)$ where s is measured in centimeters and t in seconds. Find the velocity of the particle after t sec.

2. Find the equation of the tangent line to the function $f(x) = \sqrt{x^2 + 5}$ at $(2, 3)$.

Moving Well: Find the derivative

3. $y = \sin(\sin \sqrt{x})$

4. $y = (1 + \cos^2 x)^6$

In the Zone:

5. A table of values for f , g , f' , and g' is given:

x	$f(x)$	$g(x)$	$f'(x)$	$g'(x)$
1	3	2	4	6
2	1	8	5	7
3	7	2	7	9

(a) if $h(x) = f(g(x))$, find $h'(1)$

(b) if $H(x) = g(f(x))$, find $H'(1)$

6. Use the Chain Rule to prove the derivative of an even function is an odd function.