AP Calculus
3.6 Worksheet

All work must be shown in this course for full credit. Unsupported answers may receive NO credit.

1. Find $f'(x)$, if $f(x) = \tan(\cos x)$

2. Find $\frac{dy}{dx}$, if $y = \sin\left(\tan\sqrt{\sin x}\right)$

3. Find $\frac{ds}{d\theta}$, if $s = 2\theta\sqrt{\sec\theta}$

4. Suppose f and g are differentiable functions with the values given in the table below.

x	$f(x)$	$g(x)$	$f'(x)$	$g'(x)$
2	5	5	e	$\sqrt{2}$
5	2	8	π	7

a) If $h(x) = f\left(g(x)\right)$, find $h'(2)$.

b) If $h(x) = g\left(f(x)\right)$, find $h'(2)$.

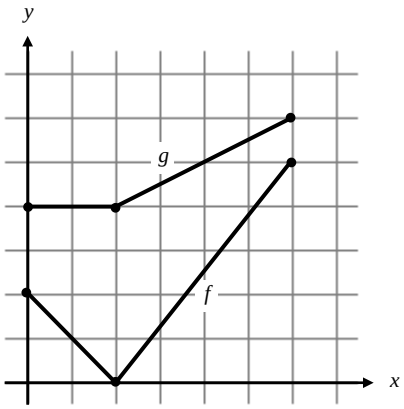
c) If $h(x) = f\left(f(x)\right)$, find $h'(2)$.

5. Find $\frac{dy}{dt}$, if $y = \tan x$. (No … there are no typos in this problem … what do you notice?)

6. Let $r(x) = f(g(x))$ and $s(x) = g(f(x))$ where f and g are shown in the figure below.

a) Find $r'(1)$.

b) Find $s'(4)$.



7. Find the equation of the tangent line when $x = 4$ on the function $f(x) = \sqrt{25 - x^2}$.

8. Find $\frac{dy}{dx}$ for $y = \sin^4(3x)$.

9. Complete the following problems from the textbook: page 153 - 155 #9, 13 – 31 odd, 53, 55, 63