

Let's get some more practice!  
Differentiate the following:

1.  $h(x) = \sqrt{3x^2 + 2x + 1}$

2.  $h(x) = \csc(x^7 + 5x - 2)$

3.  $h(x) = (3 \tan x + 5)^2$

4.  $h(x) = \sec(2x^3) - 5x^{-\pi} - 1$

5.  $h(x) = \frac{17}{(x - 3)^5}$

6.  $h(x) = \sin(\cos(x^2 + 1))$

7.  $h(x) = \frac{\sin x \cos x}{(5x - 4)^3}$

8. 3.6 #55: A table of values for  $f$ ,  $g$ ,  $f'$ ,  $g'$  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  $h(x) = (f \circ g)(x)$ , find  $h'(1)$ .

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

Differentiate:

9.  $y = 4 \sec(5x)$

10.  $y = (1 + x^4)^{2/3}$

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

12.  $y = \frac{1}{\sin(x \sin x)}$

13.  $y = \csc(x^4) + 17x - \frac{2}{x} + 1$

14. Find the equation of the tangent line to  $y = \sin x + \sin^2 x$  at  $(0, 0)$ .