

## Chain Rule Practice with Trig Functions

Name \_\_\_\_\_

Differentiate the following:

Period \_\_\_\_\_

1.  $f(x) = \sin x \cot x$

6.  $H(x) = \cos^5 3x$

11.  $r(a) = \csc(a^2 + 4)$

2.  $f(x) = \frac{\tan x}{1 + x^2}$

7.  $g(x) = \sin^4(x^3)$

12.  $H(s) = \cot(s^3 - 2s)$

3.  $g(w) = \frac{1 + \sec w}{1 - \sec w}$

8.  $t(z) = \sec(2z + 1)^2$

13.  $f(x) = \tan(2x^2 + 3)$

4.  $k(v) = \frac{\csc v}{\sec v}$

9.  $f(x) = \frac{\sec 2x}{1 + \tan 2x}$

14.  $f(x) = \cos(3x^2) + \cos^2 3x$

5.  $k(x) = \sin(x^2 + 2)$

10.  $F(x) = \frac{\cos 4x}{1 - \sin 4x}$

15.  $g(w) = \tan^3 6w$

16.  $F(t) = \csc^2 2t$

20.  $L(x) = \tan^2 x \sec^3 x$

24.  $f(x) = \sin\sqrt{x} + \sqrt{\sin x}$

17.  $M(x) = \sec\left(\frac{1}{x^2}\right)$

21.  $H(u) = u^2 \sec^3 4u$

25.  $t(x) = (\tan 2x - \sec 2x)^3$

18.  $K(z) = z^2 \cot 5z$

22.  $N(x) = (\sin 5x - \cos 5x)^5$

26.  $f(x) = \tan \sqrt[3]{5 - 6x}$

19.  $H(x) = x \csc(x^2)$

23.  $P(v) = \sin 4v \csc 4v$

27.  $f(t) = \cos(4 - 3t)$