

SHEET #354:
PRACTICE ON DIFFERENTIATION

NAME: _____ V.3

PERIOD: _____

A. QUESTIONS 1-5, USE TABLE

SURELY THESE ARE UNUSUAL VALUES FOR $f(x)$ AND $g(x)$.

x	$f(x)$	$f'(x)$	$g(x)$	$g'(x)$	1b) $\frac{d}{dx}[f(g(x))]$	2b) $\frac{d}{dx}[g(f(x))]$
0	2	5	3	9		
1	3	4	0	11		
2	0	3	2	14		
3	1	-2	1	20		

1a) WRITE FORMULA FOR $\frac{d}{dx}[f(g(x))] =$

b) FILL OUT TABLE. SHOW WORK.

2a) WRITE FORMULA FOR $\frac{d}{dx}[g(f(x))] =$

b) FILL OUT TABLE. SHOW WORK.

3. LET $R(x) = \frac{1}{[g(x)]^2}$. FIND $R'(0)$.

4. LET $P(x) = f(3x)$. FIND $P'(1)$.

5. LET $Q(x) = f(x^4)$. FIND $Q'(1)$.

B. MISCELLANEOUS PROBLEMS.

6. $\frac{d}{dx}[x^2 \cos(x)] =$

7. FIND $\frac{d^2}{dx^2}(\sin(4x))$.

8. FIND $\frac{d}{dx}(e^{\cos(x/4)})$.

9. FIND THE TANGENT LINE TO $f(x) = \sqrt{x^2+1}$ AT $x=1$.

10. $\frac{d}{dx}(\sqrt[5]{x}) =$