Name_____

Derivative Review

Given the following information, find the value of the derivative of the functions at x = 3.

x	*f(x)*	*g(x)*	*f'(x)*	*g'(x)*
3	1	8	-3	-5
6	3	-2	4	5
8	-1	3	π	4
1	2	-6	5	0

1. $f(x)+g(x)$

2. $f(x)g(x)$

3. $\dfrac{f(x)}{g(x)}$

4. $\dfrac{g(x)}{f(x)}$

5. $(f(x))^2$

6. $\dfrac{1}{g(x)}$

7. $\sqrt{f(x)}$

8. $\sqrt{f(x)+g(x)}$

9. $(f(x))^3 g(x)$

10. $\dfrac{1}{\sqrt[3]{g(x)}}$

11. $\dfrac{f(x)}{f(x)+g(x)}$

12. $f(g(x))$

13. $g(f(x))$

14. $f(f(x))$

15. $g(g(x))$

Name_____

Derivative Review

For each of the following, find the equation of the tangent line at the indicated point.

16. $y = \sqrt{x^2 + 2x + 8}$ at (2, 4)

17. $y = \sqrt[5]{3x^3 + 4x}$ at (2, 2)

18. $y = \sqrt{\dfrac{3x-1}{2x+1}}$ at (-1, 2)

19. $y = \sin x \cos x$ at (0, 0)

20. $y = \dfrac{2x}{\cos x}$ at (0, 0)

21. $y = \sin x(\sin x + \cos x)$ at $\left(\pi/4, 1\right)$

22. The table below gives some values of the derivative of some function *f*. Complete the table by finding (if possible) the derivatives of each of the following transformations of *f*.

a) $g(x) = f(x) - 2$

b) $h(x) = 2f(x)$

c) $r(x) = f(-3x)$

d) $s(x) = f(2x+1)$

X	**-2**	**-1**	**0**	**1**	**2**	**3**
f'(x)	4	$2/3$	$-1/3$	-1	-2	-4
g'(x)						
h'(x)						
r'(x)						
s'(x)						