Name:_____ Date:_____ Period:___

Constant, Power, Product, and Quotient Rule Worksheet

◆Find the derivative of the function.

1. $y = 3$

2. $f(x) = x + 1$

3. $f(t) = -2t^2 + 3t - 6$

4. $f(x) = x^3 - 3x - 2x^{-4}$

5. $g(t) = t^2 - \frac{4}{t}$

6. $h(s) = s^{4/5}$

7. $f(x) = \frac{3x-2}{2x-3}$

8. $f(x) = \frac{x+1}{\sqrt{x}}$

9. $h(t) = \frac{t+1}{t^2+2t+2}$

10. Find an equation of the tangent line to the graph of $y = x^4 - 3x^2 + 2$ at (1,0).

11. Find an equation of the tangent line to the graph of $f(x) = \frac{x}{x-1}$ at (2,2).

12. Determine the point(s) (if any) at which $y = x^4 - 3x^2 + 2$ has a horizontal tangent line.

13. Determine the point(s) (if any) at which $f(x) = \dfrac{x^2}{x-1}$ has a horizontal tangent line.

14. Find $f'(2)$ given that $f(x) = 2g(x) + h(x)$, $g(2) = 3$, $g'(2) = -2$, $h(2) = -1$, and $h'(2) = 4$.

15. Find $f'(2)$ given that $f(x) = \dfrac{g(x)}{h(x)}$, $g(2) = 3$, $g'(2) = -2$, $h(2) = -1$, and $h'(2) = 4$.