

Name: \_\_\_\_\_ Period: \_\_\_\_\_ Date: \_\_\_\_\_

**AP CALCULUS BC**  
**Derivatives Worksheet 3.3**

**Differentiate the following functions. Do not simplify the answer.**

1.  $g(t) = 6t^{\frac{5}{3}}$

2.  $h(z) = 8z^{\frac{3}{2}}$

3.  $f(s) = 15 - s + 4s^2 - 5s^4$

4.  $f(x) = 3x^2 + \sqrt[3]{x^4}$

5.  $g(x) = x^4 - \sqrt[4]{x^3}$

6.  $k(x) = (2x^2 - 4x + 1)(6x - 5)$

7.  $k(r) = r^3(3r^4 - 7r^2 + 2r)$

8.  $H(z) = (z^5 - 2z^3)(7z^2 + z + 2)$

9.  $f(x) = \frac{4x - 5}{3x + 2}$

10.  $h(x) = \frac{8x^2 - 6x + 11}{x - 1}$

11.  $G(v) = \frac{v^3 - 1}{v^3 + 1}$

12.  $g(t) = \frac{\sqrt[3]{t^2}}{3t - 5}$

13.  $f(x) = \frac{1}{1 + x + x^2 + x^3}$

14.  $p(x) = 1 + \frac{1}{x} + \frac{1}{x^2} + \frac{1}{x^3}$

15.  $h(t) = (5t - 4)^2$