Math 112

Derivative Skills Practice

Compute the derivative. DO NOT SIMPLIFY.

1. $y = \sqrt[3]{x} + \dfrac{1}{\sqrt[3]{x}}$
2. $y = \dfrac{\frac{1}{2}x^2 - 4x}{9x + 7}$
3. $y = (x+2)^8 (x+3)^6$
4. $y = \dfrac{-2}{t^{3/4}}$
5. $y = \dfrac{x}{\sqrt{9-4x}}$
6. $y = x \cdot \sqrt[4]{1+x^2}$
7. $y = \left(x + \dfrac{1}{x}\right)^7$
8. $y = \left(x^2+6\right)^2 (3x-7)^8$
9. $y = \left(\dfrac{x^3-2x}{5x^4+7}\right)^{10}$
10. $y = \sqrt{x} - \dfrac{1}{\sqrt{x}}$
11. $y = \left(1 + x^2 - x^3\right)\left(\sqrt{x} - 2\right)$
12. $f(r) = \dfrac{1 - 3r^2 + 4r^5}{3r + r^3}$
13. $f(t) = t^2\left(t^4 + t^2 + 1\right)^3 + 6t$
14. $g(v) = 2v - 5\left(7v^3 + 10\right)^{2/3}$
15. $h(v) = (2v-5)\left(7v^3 + 10\right)^{2/3}$
16. $y = \dfrac{x^2 + 2x}{x^2 + 4x + 2} + 3x^2$
17. $z = (u^2 + 3u + 4)^4$
18. $f(x) = \left(x^4 - 3x^2\right)\left(x^3 - 5x^5\right)^2$
19. $g(x) = \left[\left(x^4 - 3x^2\right)\left(x^3 - 5x^5\right)\right]^2$
20. $R(x) = \dfrac{2}{3(x^4 - x^3 + 2x)^4}$