

Differentiate each of the following by hand.

1. $f(x) = (x^3 - 3x + 1)^{10}$

2. $y = e^{4x^5 - 20x + 2}$

3. $f(t) = (2t - 3)^4(t^2 + t + 1)^5$

4. $f(x) = (x^2 - 2x)e^{x^5 - 2}$

5. $h(t) = \frac{(2t^6 - 7t^2)^3}{te^t}$

6. $f(x) = \sqrt{x + \sqrt{x + \sqrt{x}}}$

7. $y = e^{e^x}$

$$8. t(x) = (2xa^x + s)^p$$

$$9. f(x) = (x^7 + 12x^2)^{3/7}$$

$$10. y = \sqrt{1 + x + x^2 + x^3}$$

$$11. f(x) = \sqrt{\frac{x^2 - x - 1}{2x^3 - 2}}$$

$$12. y = 7^{-1/x}$$

$$13. g(x) = (2x - x^3)^{100}$$