

For problems 1-15, find the derivative of each function. You need NOT simplify your answer.

1. $y = (2x - 7)^3$

2. $g(x) = 3(4 - 9x)^4$

3. $f(x) = (9 - x^2)^4$

4. $f(t) = \sqrt{1-t}$

5. $y = (x - 3)^3(2x + 1)^5$

6. $y = (2x + 1)^4(3x - 1)^2$

7. $y = \frac{1}{x-2}$

8. $f(t) = \left(\frac{1}{t-3}\right)^2$

9. $y = \frac{1}{\sqrt{x+4}}$

10. $f(x) = x^2(x-2)^4$

11. $y = x\sqrt{1-x^2}$

12. $y = \frac{x}{\sqrt{x^2+1}}$

13. $g(x) = \left(\frac{x+5}{x^2+2}\right)^2$

14. $f(t) = \left(\frac{1-2t}{1+t}\right)^3$

15. $v(t) = \frac{-5}{(t+3)^3}$

16. Evaluate $s'(2)$ if $s(t) = \sqrt{t^2 + 2t + 8}$

17. Evaluate $f'(1)$ if $f(x) = (2x - 1)^3(2 - x)^2$

18. Evaluate $f'(0)$ if $f(t) = \frac{3t+2}{t-1}$

19. Evaluate $f'(2)$ if $f(x) = \frac{x+1}{2x-3}$

20. Find the equation of the line tangent to $f(x) = \sqrt{3x^2 - 2}$ when $x = 3$.

21. Find the equation of the line tangent to $f(x) = (2x - 1)^5$ when $x = 1$.

22. Find the second derivative of $f(x) = 2(x^2 - 1)^3$

23. Find the second derivative of $f(x) = \frac{1}{2x-3}$

24. Solve $f'(x) = 0$ if $f(x) = (x-1)^6(2x+3)^4$

25. Solve $f'(x) = 0$ if $f(x) = (3x-7)^4(2x-1)^3$