

1. The derivative of a constant is : _____.	Zero
2. State the power rule for $f(x) = x^n$ .	$f'(x) = nx^{n-1}$
3. Find the derivative for: $f(x) = x^3 - 4x^2 + 5$	$f'(x) = 3x^2 - 8x$
4. Find the derivative for: $f(x) = x^3 - 4x^2 + 5x + 3$	$f'(x) = 3x^2 - 8x + 5$
5. Find the slope of the graph of: $f(x) = x^4$ when $x = 1$ .	$f'(1) = 4$
6. Find the slope of the graph of: $f(x) = x^4$ when $x = 0$ .	$f'(0) = 0$
7. Find the slope of the graph of: $f(x) = x^4$ when $x = -2$ .	$f'(-2) = -32$
8. Find $f'(0)$ . $f(x) = x^2 + 3x - 1$	$f'(0) = 3$
9. Find $f'(1)$ . $f(x) = x^2 + 3x - 1$	$f'(1) = 5$
10. Find $f'(-2)$ . $f(x) = x^2 + 3x - 1$	$f'(-2) = -1$
11. Find $\frac{dy}{dx}$ for $y = \frac{2}{x}$	$\frac{dy}{dx} = \frac{-2}{x^2}$
12. Find $\frac{dy}{dx}$ for $y = \frac{4x^2}{5}$	$\frac{dy}{dx} = \frac{8}{5}x$
13. Find $\frac{dy}{dx}$ for $y = -\frac{3x}{2}$	$\frac{dy}{dx} = -\frac{3}{2}$
14. If $f(x) = \sqrt{x}$ , find $f'(x)$	$f'(x) = \frac{1}{2\sqrt{x}}$
15. If $f(x) = \sqrt[3]{x}$ , find $f'(x)$	$f'(x) = \frac{1}{3\sqrt[3]{x^2}}$
16. If $f(x) = \sqrt[3]{x^2}$ , find $f'(x)$	$f'(x) = \frac{2}{3\sqrt[3]{x}}$
17. Find the derivative for: $f(x) = \frac{1}{x^4}$	$f'(x) = -4x^{-5}$
18. Find the derivative for: $f(x) = \frac{1}{\sqrt{x}}$	$f'(x) = -\frac{1}{2}x^{-3/2}$
19. Find the derivative for: $f(x) = \frac{2}{x^3}$	$f'(x) = -6x^{-4}$
20. Find the equation of the tangent line for $f(x) = 3x^2 - 4x + 1$ at $x = 0$ .	$y - 1 = -4(x - 0)$
21. Find the equation of the tangent line for $f(x) = 3x^2 - 4x + 1$ at $x = 1$ .	$y - 0 = 2(x - 1)$
22. Find the equation of the tangent line for $f(x) = 3x^2 - 4x + 1$ at $x = -2$ .	$y - 21 = -16(x + 2)$
23. True or False. If $y = \pi^2$ , then $y' = 2\pi$	False
24. True or False. If $y = \frac{x}{\pi}$ , then $y' = \frac{1}{\pi}$	True
25. Find $y'$ . $y = x^3 - 4x + 5$	$y' = 3x^2 - 4$
26. Find $y'$ . $y = -\frac{x^4}{2} + 3x^3 - 2x$	$y' = -2x^3 + 9x^2 - 2$
27. Find $y'$ . $y = \frac{1}{2\sqrt[3]{x^2}}$	$y' = -\frac{1}{3}x^{5/3}$
28. Find the x-value(s) at which the graph of the function $f(x) = \frac{1}{3}x^3 - x$ has a horizontal tangent line.	$x = 1, x = -1$
29. Find the x-value(s) at which the graph of the function $f(x) = 4x^3 + 5$ has a horizontal tangent line.	$x = 0$
30. Find the x-value(s) at which the graph of the function $f(x) = x^2 + 2x - 1$ has a horizontal tangent line.	$x = -1$