

Derivatives Fair

Here's a large bunch of derivatives to compute. Each item defines a function. In each case, compute the derivative.

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

2. $g(x) = (x + 4)^2$

3. $h(x) = x^3\sqrt{x} + x^3$

4. $i(x) = \sqrt[3]{x}$

5. $j(x) = \frac{x + 1}{x + 2}$

6. $k(x) = \frac{\cos(x)}{x + 1}$

7. $l(x) = x^2 \sin(x)$

8. $m(x) = \sin(x + x^2)$

9. $n(x) = \tan(x)$

10. $p(x) = \cot(x)$

11. $q(x) = \sec(x)$

12. $r(x) = \csc(x)$

13. $s(x) = x - \tan(x)$

14. $t(x) = \sin^2(x)$

15. $u(x) = \cos^2(x)$

16. $v(x) = \frac{x^3 + x^2 + 5x - 12}{(x - 2)^2}$

17. $w(x) = \frac{\sin(x)}{x^2}$

18. $y(x) = \sin(2x)$

19. $z(x) = \sin(6 \cos(6 \sin(6 \cos(6x))))$

20. $a(x) = (x^2 + 1) \tan(x)$

21. $b(x) = (4x^2 + x) \sin(x) \cos(x)$

22. $c(x) = \sin^3(x)$

23. $d(x) = \sin\left(\frac{\cos(x)}{x}\right)$

24. $e(x) = x\sqrt{x} \sin(x) \cos(x)$

25. $f(x) = \frac{x\sqrt{x} \sin(x) \cos(x)}{x^2 + x + 1}$

26. $g(x) = \sin((x + 1)^2(x + 2))$

27. $h(x) = \frac{1}{x - \frac{2}{x + \sin(x)}}$