

Derivative Worksheet

Directions: Compute the derivative of each function using the rules for differentiation. Show ALL work in your final write-up and simplify your answer where appropriate.

1. $y = 3x^2 + x \sec(x)$

2. $y = \sin(\sqrt{x})$

3. $y = \tan^3(x) + \pi$

4. $y = (x^3 + 4x + 1)^5$

5. $y = \cos\left(\frac{1}{x}\right) - \sqrt{x}$

6. $y = \frac{\sin(x)}{\sin(x) + \cos(x)}$

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

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

9. $y = 3x \sin^2(x)$

10. $y = \left(\frac{x^2}{\sin(x)}\right)^{-1}$

11. $y = (2x - 1)^6 (x^3 - 8)^4$

12. $y = \frac{\sin(4x)}{\sin(3x)}$

13. $y = x\sqrt{3x - 2}$

14. $y = \frac{2}{3}x^{-1/2} + \frac{1}{2}x^{1/3} - \frac{3}{2}x^{-1} + \frac{9}{5}$

15. $y = \frac{x}{x - \frac{5}{x}}$