

Math 141 Differentiation Practice

1. $y = x^2 \tan^{-1}(3x - 4)$

11. $y = \sin^{-1}(x) + \cos^{-1}(x)$

2. $y = \ln(e^{3x} + x)$

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

3. $y = 4\sqrt{\tan(x)}$

13. $y = \tan x \sec^3 x$

4. $y = \frac{x - 5}{5x - 1}$

14. $y = \frac{1}{2} \ln(e^{2x} + 1)$

5. Find $\frac{dy}{dx}$ if $x = \cos^3 t$; $y = \sin^3 t$

15. $y = \tan^{-1} x$

6. $y = 4x^2 - \frac{1}{x^3 - x}$

16. $y = \cos^{37}(2x)$

7. $f(x) = x^{432} e^{-x}$

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

8. $y = \sin^4(3x^3 - 7)$

18. $y = x \cos x - \sin x$

9. $y = \tan^{-1}(x) + \tan^{-1}(1/x)$ for $x > 0$

19. $y = x \ln x - x$

10. $y = \frac{x^2 - 3}{x^2 + 4}$

20. $y = \ln(\ln x)$