

MCS22 Homework 18

Find $\frac{dy}{dx}$.

1. $y = \log_{\sqrt{2}} x$

2. $y = x \log_4 x$

3. $y = (\log x)^2$

4. $y = 5^x \cdot \log_9(x^5)$

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

6. $y = \frac{1}{\log_5(2 - x^3)}$

7. $y = \frac{\log x}{\ln x}$

8. $y = \ln(\cot x - \csc x)$

9. $y = \log_2 \sqrt{2^{7x}}$

10. $y = \frac{\log_2 x}{e^{4x}}$

11. $y = \ln\left(\frac{e^x}{e^x - 1}\right)$

12. $y = \log_8(2x \sec x) + e^8$

13. $y = e^{\pi x} - \ln e^{\pi x}$

14. $y = \ln\left(\frac{5x^2}{\sqrt{5 + x^2}}\right)$

15. $y = x \ln \cos 3x - x^3$