

AP Calculus: Practice Differentiation involving ln and e^x

Find the derivative of:

1. $f(x) = \ln \frac{x^2}{\sqrt{x}}$

2. $f(x) = \frac{\ln x^2}{\sqrt{x}}$

3. $f(x) = \ln(x + \sqrt{x})$

4. $f(x) = \sqrt{x} \cdot \ln x^2$

5. $f(x) = \frac{(\ln x)^2}{\sqrt{x}}$

6. $f(x) = \ln(x^2 + \sqrt{x})$

7. $f(x) = \ln(x + \sqrt{x})^2$

8. $f(x) = \frac{\ln x}{e^x}$

9. $f(x) = \frac{e^x}{\ln x}$

10. $f(x) = \frac{\ln x^2}{e^{2x}}$

11. $f(x) = \frac{\ln x^2}{e^{x^2}}$

12. $f(x) = \frac{(\ln x)^2}{e^{3x}}$

13. $f(x) = \frac{\ln x}{e^x + e^{-x}}$

14. $f(x) = (\ln x)e^{-x}$

15. $f(x) = \ln e^x$

16. $(\ln x)e^2 - e^{2x}$

17. $f(x) = \ln x(e^{x^2} - e^{-2x})$

18. $f(x) = e^5 \ln x$

19. $f(x) = e^{-x}(\ln x)$

20. $f(x) = \ln(\ln(e^{-2x^2}))$