

Tecnológico de Estudios Superiores de Huixquilucan - Ingeniería Mecatrónica
Cálculo Diferencial - Actividad 5 - Tarea

Resolver los siguientes ejercicios.

Nombre del (la) estudiante: _____

Hallar la derivada de las siguientes funciones:

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| 1. $y = \ln(ax + b)$ | 11. $y = \ln(ax\sqrt{a+x})$ | 21. $z = b^{2y}$ |
| 2. $y = \ln(ax^2 + b)$ | 12. $y = x \ln(x)$ | 22. $u = se^s$ |
| 3. $y = \ln(ax + b)^2$ | 13. $y = \ln(x + \sqrt{1+x^2})$ | 23. $v = \frac{e^u}{u}$ |
| 4. $y = \ln(ax^n)$ | 14. $s = \ln\left(\sqrt{\frac{a+bt}{a-bt}}\right)$ | 24. $y = \frac{\ln(x)}{x}$ |
| 5. $y = \ln(x^3)$ | 15. $y = x^2 \ln(x^2)$ | 25. $y = \ln(x^2 e^x)$ |
| 6. $y = \ln(x)^3$ | 16. $y = e^{nx}$ | 26. $y = \frac{e^x - 1}{e^x + 1}$ |
| 7. $y = \ln(2x^3 - 3x^2 + 4)$ | 17. $y = 10^{nx}$ | 27. $y = x^2 e^{-x}$ |
| 8. $y = \log\left(\frac{2}{x}\right)$ | 18. $y = e^{x^2}$ | 28. $y = \frac{e^x - e^{-x}}{e^x + e^{-x}}$ |
| 9. $y = \ln\left(\frac{x^2}{1+x^2}\right)$ | 19. $y = \frac{2}{e^x}$ | 29. $s = \frac{\ln(t^2)}{t^2}$ |
| 10. $y = \ln(\sqrt{9-2x^2})$ | 20. $s = e^{\sqrt{t}}$ | 30. $y = \ln\left(\frac{\sqrt{x^2+1}-x}{\sqrt{x^2+1}+x}\right)$ |

En los problemas 31 a 40 hallar el valor de $\frac{dy}{dx}$ para el valor dado de x .

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| 31. $y = \ln(x^2 + 2); x = 4$ | 35. $y = \frac{\ln(x^2)}{x}; x = 4$ | 38. $y = 10^{\sqrt{x}}; x = 4$ |
| 32. $y = \log(4x - 3); x = 2$ | 36. $y = \frac{e^{\frac{x}{2}}}{x+1}; x = 1$ | 39. $y = \left(\frac{3}{x}\right)^x; x = 3$ |
| 33. $y = x \ln(\sqrt{x+3}); x = 6$ | 37. $y = \log \sqrt{25-4x}; x = 5$ | 40. $y = \frac{x^3 \sqrt{x^2+9}}{\sqrt[3]{20-3x}}; x = 4$ |