

Indices & logarithms

1. Solve the equation $8^{x+1} = 15$ [$x=0.302$]
2. Solve the equation $4^x = 32$ [$x = \frac{5}{2}$]
3. Solve the equation $8^{2x-3} = \frac{1}{\sqrt{4^{x+2}}}$ [$x=1$]
4. Solve the equation $6^{x^2} - 36^{4-x} = 0$ [$x=2,-4$]
5. Given that $\log_2 xy = 2 + 3 \log_2 x - \log_2 y$, express y in terms of x [$y=2x$]
6. Solve the equation $(5^{x+1})^2 = \frac{1}{125}$ [$x = -\frac{5}{2}$]
7. Solve the equation $2 + \log_3(x - 1) = \log_3 x$ [$x=1.125$]
8. Simplify $\log_6 3 + \log_6 3 + \log_6 24$ [3]
9. Solve the equation $\log_{10} 2x + \log_{10}(4x - 1) = 1$ [$x = \frac{5}{4}, -1$]
10. Given the equation $\log_{10}(2x + y) = 1 + \log_{10}(y - 5)$, express y in term of x . $y = \frac{2}{9}(x + 25)$
11. Given that $\log_4 T + \log_2 V = \frac{1}{2}$, express T in terms of V . [$T = \frac{2}{V^2}$]
12. Solve the equation $\log_y 34 = 6$ [$y=1.8$]
13. Simplify $1 - 2\log_5 25 + 3 \log_5 125$ [6]
14. Solve the equation $\log_{10}(2x + 6) = 1 + \log_{10}(x - 5)$ [$x=7$]
15. Solve the equation $4 \log_x 5 + 2 \log_x 3 - \log_x 375 = 4$ and give your answer correct to the four significant figures. [$x=1.968$]