Logarithm Set (1)

1. If $\log_2 x = a$ and $\log_3 y = a$, find 12^{2a-1} in terms of x and y.
2. Find the value of $2+1/2 \log_{10}9 - 2\log_{10}5$
3. If $3\log\sqrt{m} + 2\log \sqrt[3]{n} - 1 = 0$ then find the value of m^9n^4
4. If $a^2=\log x$, $b^3=\log y$ and $a^2/2 - b^3/3 = \log c$. Find c in terms of x and y.
5. Find n: $\log 7 - \log 2 + \log 16 - 2\log 3 - \log\frac{7}{45} = 1 + \log n$
6. Find the value of x: $\log_5(x+1) - 1 = 1 + \log_5(x-1)$
7. Find the value of x: $\log_x 15\sqrt{5} = 2 - \log_x 3\sqrt{5}$
8. Find the value of x: $\log_x 49 - \log_x 7 + \log_x\frac{1}{343} + 2 = 0$
9. Given $3 \log x + ½ \log y = 2$ express y in terms of x.
10. Given $x=\log_{10}12$, $y=\log_4 2 \times \log_{10}9$ and $z= \log_{10}0.4$ find the value of $x-y-z$ and 13^{x-y-z}
11. Find the value of $\log_{125}625 - \log_{16}64$
12. Find the value of $\log_{16}32 - \log_{25}125 + \log_9 27$
13. Prove that $7 \log\frac{16}{15} + 5 \log\frac{25}{24} + 3 \log \frac{81}{80} = \log 2$
14. $½ \log 9 + 2 \log 6 + ¼ \log 81 - \log 12 = 3\log 3$
15. $\log_{10}(x+1)+\log_{10}(x-1)=\log_{10}11+2\log_{10}3$

Answer

1. $x^4y^2/12$
2. $\log_{10}12$
3. 10^6
4. $\sqrt[6]{\frac{x^3}{y^2}}$
5. 4
6. $1\frac{1}{12}$
7. 15
8. 7
9. $10000x^{-6}$
10. 1 , 13
11. -1/6
12. 1¼