

NC 44 - Exponential Functions and Logarithms

Do all work and put all answers on notebook paper.

1. Graph $f(x) = 3^x$ for $-2 \leq x \leq 2$.

On the same coordinate system, graph $y = x$ and $f^{-1}(x) = \log_3 x$.

For questions 2-6, solve for x by changing to a common base.

2. $5^{3x} = 25^{x-2}$

3. $4^{x+3} = \frac{1}{16}$

4. $8^{3x+1} = \sqrt{2}$

5. $\frac{2^{3x}}{4^{5x}} = 16$

6. $(125)^x = 5^{x^2+2}$

For question 7-11, solve for x using the definition of a logarithm.

7. $\log_5 \frac{1}{25} = x$

8. $\log_3(x+2) = 2$

9. $\log_2(x^2 - 3x) = 2$

10. $\log_5(x^2 + 4) = 3$

11. $\log_{x+3} 25 = 2$

12. Change to exponential form. $\log_4 16 = 2$

13. Change to logarithmic form. $5^3 = 125$

14. Solve $\log_4(x+2) = \log_4 x^2$