

Algebra 2/Trig IB
Exponential and Logarithmic Functions

Name_____

Solve. If you cannot state your solution as a fraction, then round to 3 decimals.

1. $36^x = \left(\frac{1}{6}\right)^{1-2x}$

2. $\sqrt{7} = \left(\frac{1}{49}\right)^{x-3}$

3. $\left(\frac{8}{27}\right)^{2x} = \left(\frac{81}{16}\right)^{2x-3}$

4. $(\sqrt[3]{4})^{x-4} = \left(\frac{1}{64}\right)^{3x}$

5. $(\sqrt[6]{32})^{x-5} = \left(\sqrt[4]{\frac{1}{8}}\right)^{x+1}$

6. $\log_3(3x - 8) = \log_3 4x$

7. $\log_5 10 + \log_5 2x^2 = 1$

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

9. $\log_2(4x^2 - 4) - 5 = \log_2 3$

10. $3^x = 47$

11. $8 \cdot 17^{5x} = 62$

12. $\log_2 50 = 2x + 5$

13. $9.7e^{7x-10} + 6 = 41$

14. $\log(x + 4) - \log x = \log(x + 2)$

15. $6 \log_3\left(\frac{1}{2}x\right) = 11$

Expand each logarithm.

16. $\log_4 \sqrt[3]{xyz}$

17. $\log_6 \left(\frac{6}{x^3}\right)^2$

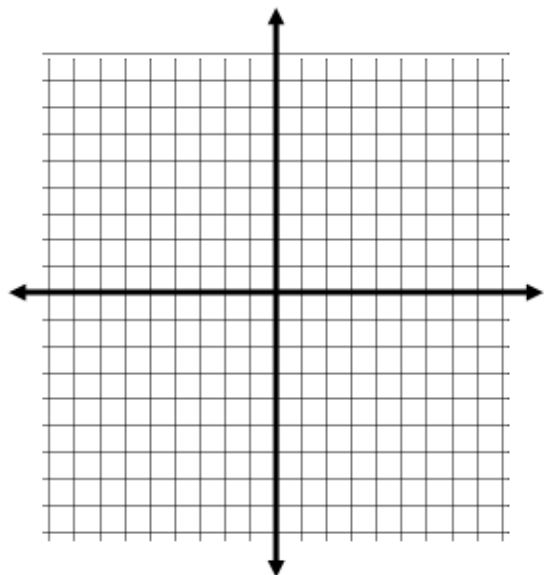
Condense into a single logarithm.

18. $\frac{\log 3}{2} + \frac{\log 7}{2} + \log 5 + \log 2$

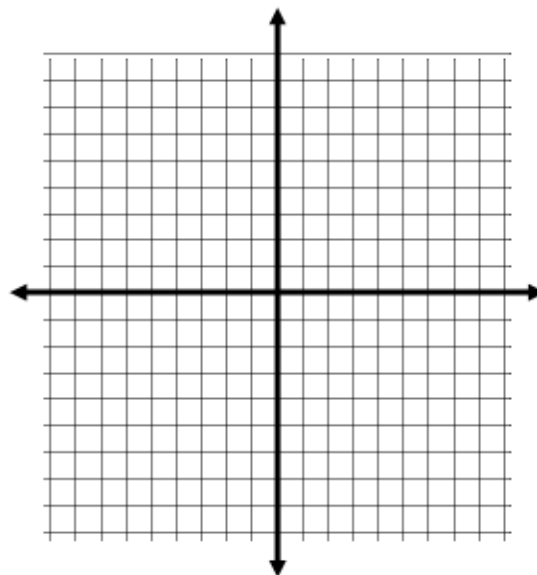
19. $\frac{1}{2}\log_3 x + 3 - 2\log_3 y$

Graph each function.

20. $f(x) = -2^{x-5} + 3$



21. $g(x) = \log_2(2 - x) - 2$



22. $h(x) = \log_2(-x - 5) + 3$

23-24. Find $h^{-1}(x)$ and graph this function on the same set of axes as $h(x)$

