

1. Change each exponential statement to an equivalent statement involving a logarithm.

a. $1.2^3 = m$

b. $e^b = 9$

c. $a^4 = 24$

2. Change each logarithmic statement into an equivalent statement involving an exponent.

a. $\log_a(4) = 5$

b. $\ln(b) = -3$

c. $\log_3(5) = c$

3. Evaluate the following:

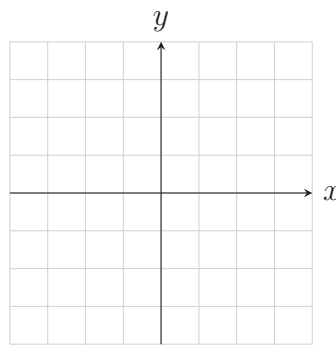
a. $\log_2(16)$

c. $\log_{\frac{1}{2}}(8)$

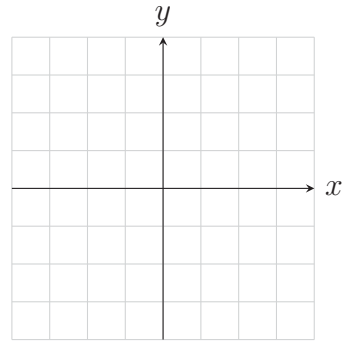
b. $\log_3\left(\frac{1}{27}\right)$

d. $\log_5(1)$

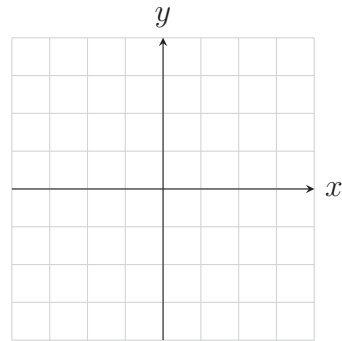
4. Graph $exp_2(x) = 2^x$ and $y = \log_2(x)$ on the same set of axes. State the domain and range of both.



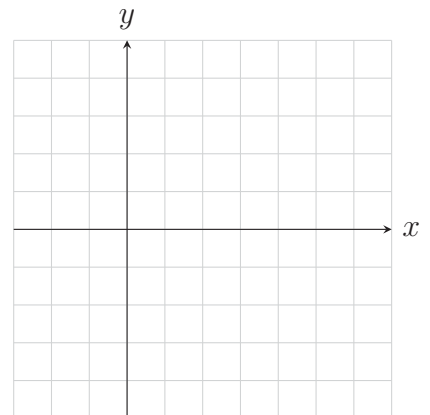
5. Graph $exp_{\frac{1}{2}}(x) = \left(\frac{1}{2}\right)^x$ and $y = \log_{\frac{1}{2}}(x)$ on the same set of axes. State the domain and range of both.



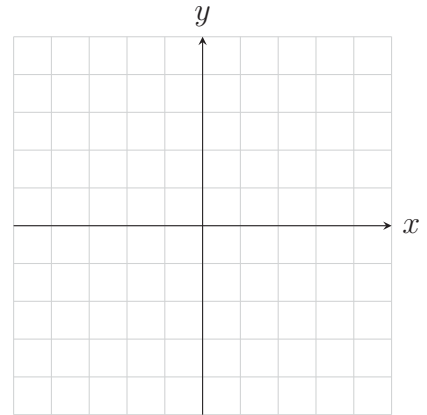
6. Graph $f(x) = e^x$ and $y = \ln(x)$ on the same set of axes. State the domain and range of both.



7. Use transformations to graph $f(x) = -\ln(x - 2) + 1$ then state the domain and range of f .



8. Consider $f(x) = 3 \log(x - 1)$. Find f^{-1} , graph f and f^{-1} on the same coordinate plane, and state the domain and range of both.



9. Find the domain of each logarithmic function.

a. $F(x) = \log_2(x + 3)$

b. $g(x) = \log_5 \left(\left| \frac{1 + x}{1 - x} \right| \right)$

c. $h(x) = \log_{\frac{1}{2}}(|x|)$

10. Solve the following equations.

a. $\log_3(4x - 7) = 2$

b. $e^{2x} = 5$

c. $2 \cdot 10^{2-x} = 5$

f. $\ln(3x - 2) = 5$

d. $\log_2(8^x) = -3$

g. $4e^{x+1} = 5$

e. $\ln e^x = 5$

h. $8 \cdot 3^{2x-7} = 4$