

Name:
Instructor:

Date:
Section:

Practice Set 9.3

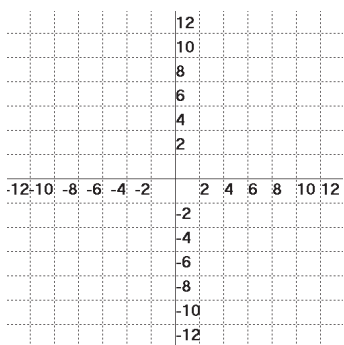
Use the choices to fill in each blank.

- | | | | | |
|----------|-----------|-----------|-------|---------------------|
| 0 | 1 | x -axis | a^y | line $y = x$ |
| ∞ | $-\infty$ | y -axis | y^a | $(-\infty, \infty)$ |

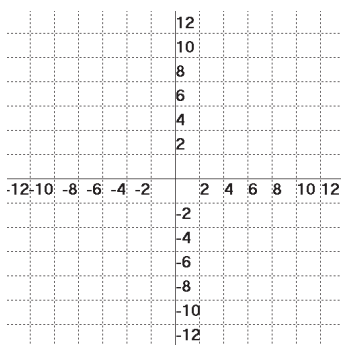
- For all positive numbers a , where $a \neq 1$, $y = \log_a x$ means $x =$ _____.
- For any logarithmic function $y = \log_a x$, the domain is $\{x|x > \text{_____}\}$.
- The graphs of $y = a^x$ and $y = \log_a x$ for $a > 0$ and $a \neq 1$ are symmetric about the _____.
- For any logarithmic function $y = \log_a x$, the range is _____.

Graph each logarithmic function.

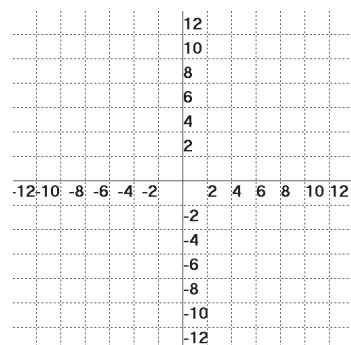
5. $y = \log_3 x$



6. $y = \log_4 x$



7. $y = \left(\frac{1}{2}\right)^x$, $y = \log_{1/2} x$



Write each equation in logarithmic form.

8. $3^3 = 27$

9. $25^{1/2} = 5$

8. _____

10. $3^{-3} = \frac{1}{27}$

11. $8^{1/3} = 2$

9. _____

10. _____

11. _____

Write each equation in exponential form.

12. $\log_7 49 = 2$

13. $\log_{64} 8 = \frac{1}{2}$

12. _____

14. $\log_{10} \frac{1}{100} = -2$

15. $\log_{1/3} \frac{1}{81} = 4$

13. _____

14. _____

15. _____

Write each equation in exponential form and then find the unknown value.

16. $\log_7 49 = x$

17. $\log_2 x = 6$

16. _____

17. _____

18. $\log_{1/2} x = 3$

19. $\log_a \frac{1}{64} = -3$

18. _____

19. _____