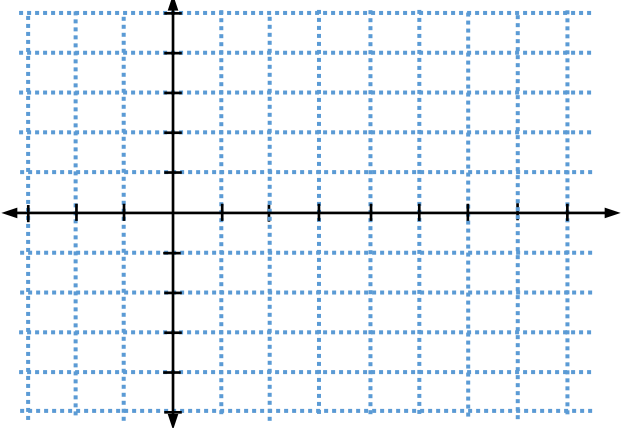


**Math 3 Unit 9 Worksheet 4**  
**Graphing Logarithmic Functions**

Name: \_\_\_\_\_  
 Date: \_\_\_\_\_ Per: \_\_\_\_\_

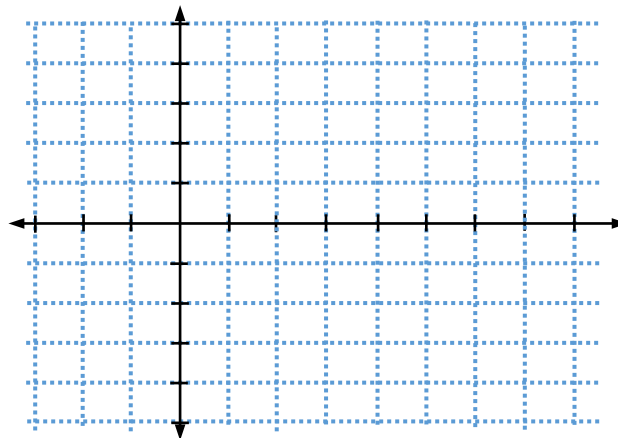
[1-8] For the following logarithmic functions: graph, find the x- and y-intercept(s), state the domain and range and find the equation of the vertical asymptote.

1.  $y = \log_3 x$



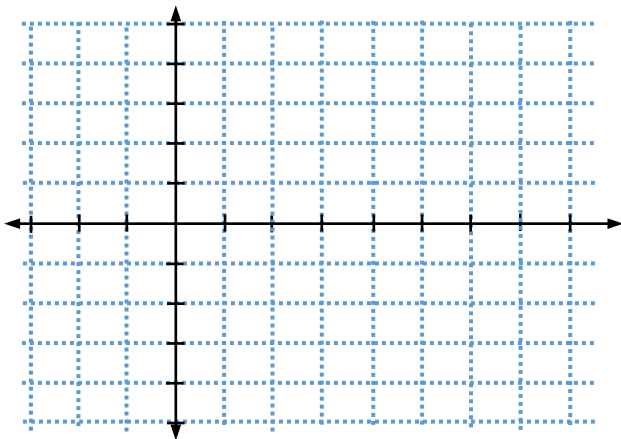
x-intercept: \_\_\_\_\_  
 y-intercept: \_\_\_\_\_  
 Domain: \_\_\_\_\_  
 Range: \_\_\_\_\_  
 Vertical Asymptote: \_\_\_\_\_

2.  $y = \ln x + 3$



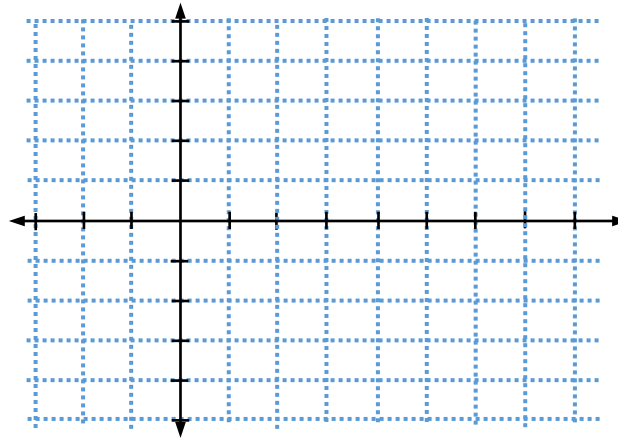
x-intercept: \_\_\_\_\_  
 y-intercept: \_\_\_\_\_  
 Domain: \_\_\_\_\_  
 Range: \_\_\_\_\_  
 Vertical Asymptote: \_\_\_\_\_

3.  $f(x) = \log(x + 3)$



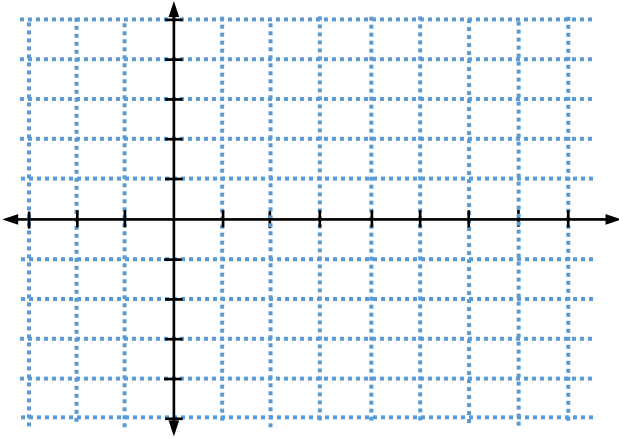
x-intercept: \_\_\_\_\_  
 y-intercept: \_\_\_\_\_  
 Domain: \_\_\_\_\_  
 Range: \_\_\_\_\_  
 Vertical Asymptote: \_\_\_\_\_

4.  $y = \log_5 x - 1$



x-intercept: \_\_\_\_\_  
 y-intercept: \_\_\_\_\_  
 Domain: \_\_\_\_\_  
 Range: \_\_\_\_\_  
 Vertical Asymptote: \_\_\_\_\_

5.  $f(x) = -\ln(x - 4)$



x-intercept: \_\_\_\_\_

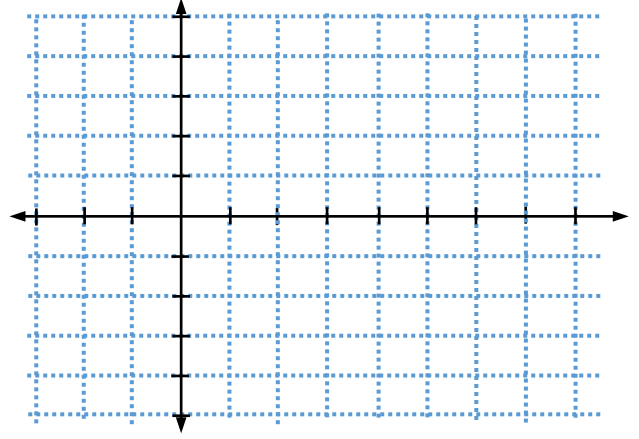
y-intercept: \_\_\_\_\_

Domain: \_\_\_\_\_

Range: \_\_\_\_\_

Vertical Asymptote: \_\_\_\_\_

6.  $y = \log_4(x + 1) - 2$



x-intercept: \_\_\_\_\_

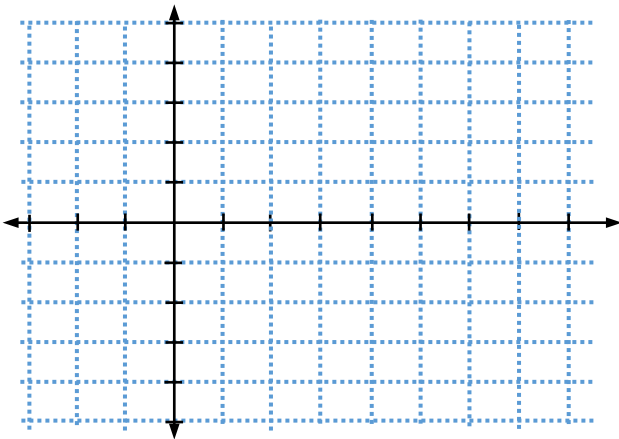
y-intercept: \_\_\_\_\_

Domain: \_\_\_\_\_

Range: \_\_\_\_\_

Vertical Asymptote: \_\_\_\_\_

7.  $f(x) = 2 - \log_2(x + 1)$



x-intercept: \_\_\_\_\_

y-intercept: \_\_\_\_\_

Domain: \_\_\_\_\_

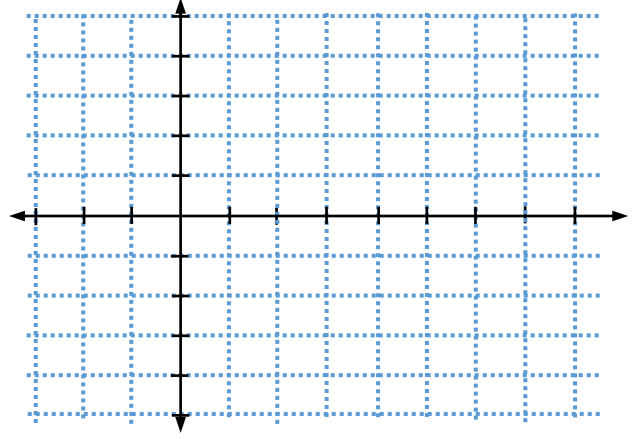
Range: \_\_\_\_\_

Vertical Asymptote: \_\_\_\_\_

Average rate of change on  $[1, 7]$ :

\_\_\_\_\_

8.  $y = \log_4(x - 3) + 1$



x-intercept: \_\_\_\_\_

y-intercept: \_\_\_\_\_

Domain: \_\_\_\_\_

Range: \_\_\_\_\_

Vertical Asymptote: \_\_\_\_\_

Average rate of change on  $[4, 7]$ :

\_\_\_\_\_