

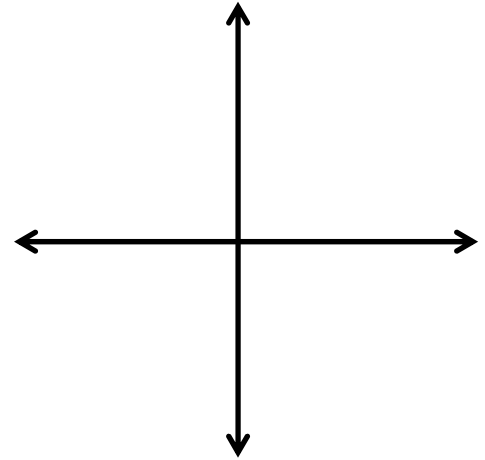
Directions: Use the following function to answer questions 1-5.

$$f(x) = \log(x + 4) - 1$$

1) x-intercept:

2) End Behavior:

3) Sketch and Label:



4) Vertical Asymptote:

5) Shifts:

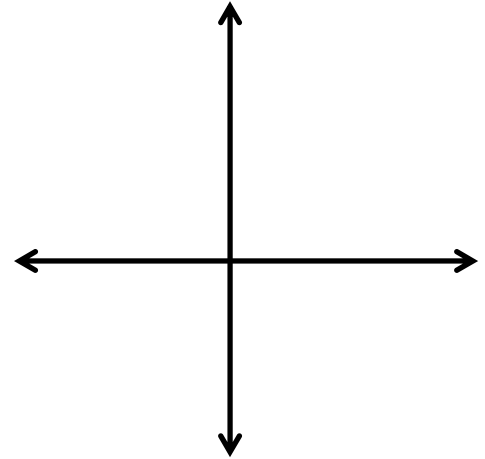
Directions: Use the following function to answer questions 6-10.

$$f(x) = \log_4(x + 10) - 2$$

6) x-intercept:

7) End Behavior:

8) Sketch and Label:



9) Vertical Asymptote:

10) Shifts:

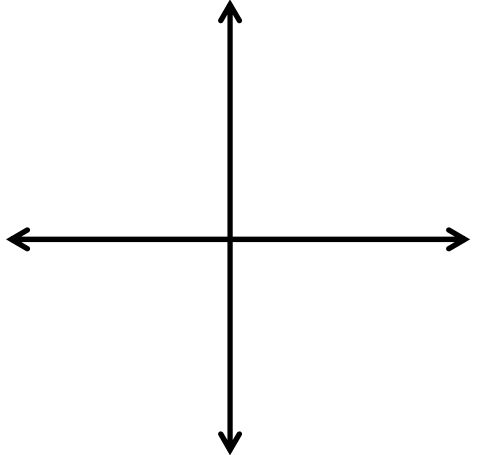
Directions: Use the following function to answer questions 11-15.

$$f(x) = \log_2(x - 5) + 1$$

11) x-intercept:

12) End Behavior:

13) Sketch and Label:



14) Vertical Asymptote:

15) Shifts:

8.2 Logarithmic Graphs

Corrective Assignment Answers

Directions: Use the following function to answer questions 1-5.

$$f(x) = \log(x + 4) - 1$$

1) x-intercept:

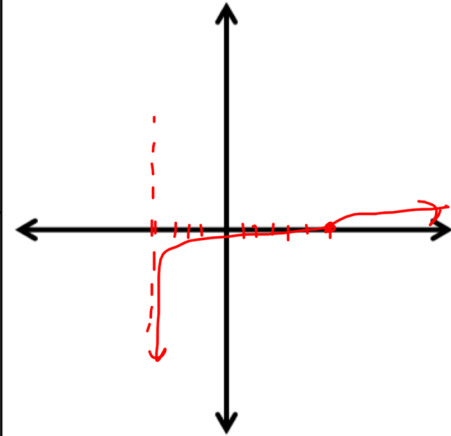
$$\begin{aligned} 0 &= \log(x+4) - 1 \\ 1 &= \log(x+4) \\ 10^1 &= x+4 \\ 10-4 &= x \\ 6 &= x \end{aligned}$$

$(6, 0)$

2) End Behavior:

$$\begin{aligned} x &\rightarrow -4^+, f(x) \rightarrow -\infty \\ x &\rightarrow \infty, f(x) \rightarrow \infty \end{aligned}$$

3) Sketch and Label:



4) Vertical Asymptote:

$$\begin{aligned} x+4 &= 0 \\ x &= -4 \end{aligned}$$

5) Shifts:

Vertical shift down 1
horizontal shift left 4.

Directions: Use the following function to answer questions 6-10.

$$f(x) = \log_4(x + 10) - 2$$

6) x-intercept:

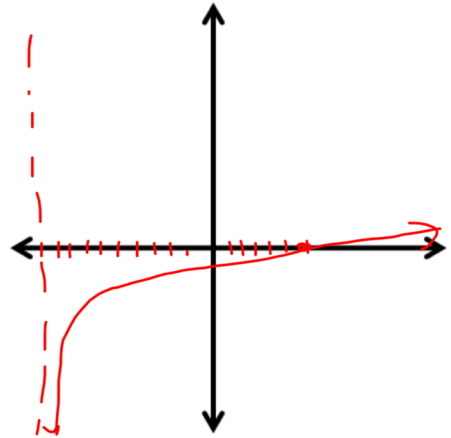
$$\begin{aligned} 0 &= \log_4(x+10) - 2 \\ 2 &= \log_4(x+10) \\ 4^2 &= x+10 \\ 16 &= x+10 \\ 6 &= x \end{aligned}$$

$(6, 0)$

7) End Behavior:

$$\begin{aligned} x &\rightarrow -10^+, f(x) \rightarrow -\infty \\ f(x) &\rightarrow \infty, f(x) \rightarrow \infty \end{aligned}$$

8) Sketch and Label:



9) Vertical Asymptote:

$$\begin{aligned} x+10 &= 0 \\ x &= -10 \end{aligned}$$

10) Shifts:

Vertical shift down 2,
horizontal shift left 10.

Directions: Use the following function to answer questions 11-15.

$$f(x) = \log_2(x - 5) + 1$$

11) x-intercept:

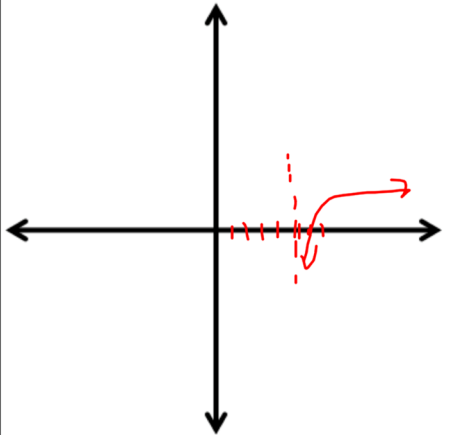
$$\begin{aligned} 0 &= \log_2(x-5) + 1 \\ -1 &= \log_2(x-5) \\ 2^{-1} &= x-5 \\ \frac{1}{2} + 5 &= x \end{aligned}$$

$(5.5, 0)$

12) End Behavior:

$$\begin{aligned} x &\rightarrow 5^+, f(x) \rightarrow -\infty \\ x &\rightarrow \infty, f(x) \rightarrow \infty \end{aligned}$$

13) Sketch and Label:



14) Vertical Asymptote:

$$\begin{aligned} x-5 &= 0 \\ x &= 5 \end{aligned}$$

15) Shifts:

Vertical shift up 1,
horizontal shift right 5.