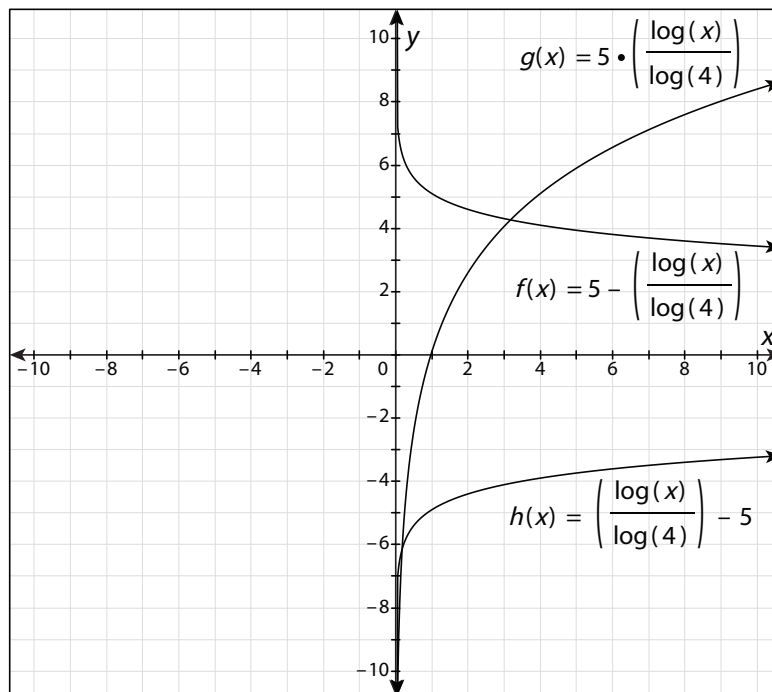


Scaffolded Practice: Graphing Logarithmic Functions

For problems 1–4, sketch the graph of each function on a coordinate plane without using a calculator. Include at least four points for each graph.

- $a(x) = 3 \cdot \log_2 x$
- $b(x) = 2 \cdot \log_3 (x + 1)$
- $c(x) = 1 - 2 \cdot \log_4 x$
- $d(x) = \log_2 (3 - x) - 4$

The functions $f(x)$, $g(x)$, and $h(x)$ are shown in the following graph. For problems 5–7, provide the domain, intercept(s), and range for each requested function. Then, write a simple logarithmic equation for each graphed function. Assume each function is of the form $f(x) = a + b \cdot \log_c$, and that c has the same value for all three functions.



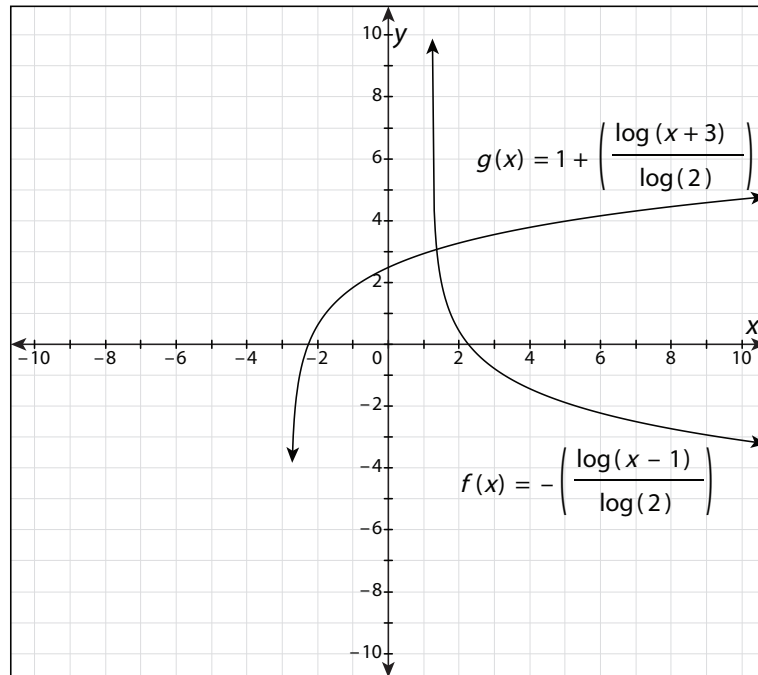
- $f(x)$
- $g(x)$
- $h(x)$

continued

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For problems 8–10, refer to the following graph of $f(x)$ and $g(x)$ to sketch the graph of the function described in each problem.



8. $a(x) = f(x) + g(x)$

9. $b(x) = f(x) - g(x)$

10. $c(x) = g(x) - f(x)$