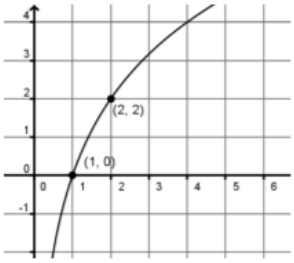
Graphing Logarithmic Functions Homework

Without a calculator, match each function with its graph.

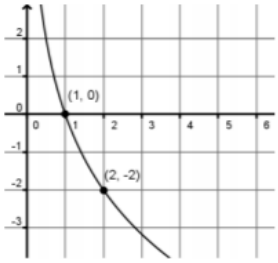
D 1. $f(x) = \log_2 x$ F 2. $f(x) = \log_2(-x)$ A 3. $f(x) = 2\log_2 x$

E 4. $f(x) = \frac{1}{2}\log_2 x$ C 5. $f(x) = 2\log_2(-x)$ B 6. $f(x) = -2\log_2 x$

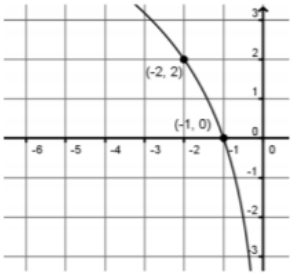
A.



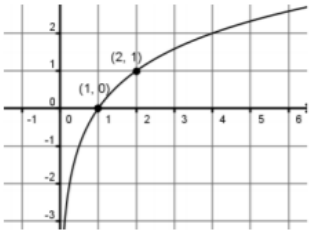
B.



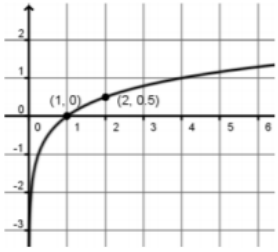
C.



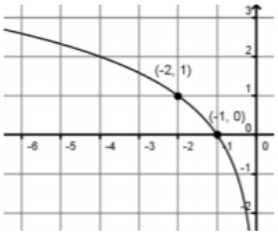
D.



E.



F.



Graph the following logarithmic functions and identify the key features:

7. $f(x) = 3log_5 x + 2$

Transformations from $f(x) = log_5 x$:

Vertical stretch by factor of 3 & up 2

Domain: (0, ∞)

Range: (−∞, ∞)

Asymptote: X = 0

8. $f(x) = -log_3(2x)$

Transformations from $f(x) = log_3 x$:

reflect over x-axis, horizontal shrink by factor of 2

Domain: (0, ∞)

Range: (−∞, ∞)

Asymptote: X = 0

9. $f(x) = -2log_4(x - 3) - 4$

Transformations from $f(x) = log_4 x$:

reflect over x-axis, vertical stretch by factor of 2, right 3, down 4

Domain: (3, ∞)

Range: (−∞, ∞)

Asymptote: X = 3

10. $f(x) = 2log_2(-x) + 5$

Transformations from $f(x) = log_2 x$:

vertical stretch by factor of 2, reflect over y-axis, up 5

Domain: (0, ∞)

Range: (−∞, ∞)

Asymptote: X = 0