

## Pre-Calculus

Describe the graphical transformation(s) of a logarithmic function from its mother function.

1.  $y = 3 \log(x + 5) - 6$

2.  $y = -\log(3x) + 7$

3.  $y = -2 \log(x - 7) + 12$

4.  $y = -\log(-x) + 3$

5.  $y = 5 \log(x - 9) - 15$

6.  $y = \ln(x + 3) - 11$

7.  $y = -2 \ln(-x) + 19$

8.  $y = 5 \ln(x + 8) + 23$

9.  $y = \frac{1}{2} \ln(5x) - 17$

10.  $y = -\frac{1}{3} \ln(x - 11) + 13$