Graphing Logarithms : $y = \log_b(x - h) + k$

To graph logarithmic functions:

1. **Draw the graph of the parent function; $y = \log_b(x)$ going through (1, 0) and (b, 1), where b is the base**
2. **Move each point on the parent graph over *h* units and up *k* units.**
3. **Move the asymptotic line**
4. **Connect the points.**

Sketch the following graphs

1a. $y = \log_3 (x)$ **b.** $y = \log_2 (x)$

2a. $y = \log (x)$ **b.** $y = \log_5 (x)$

3a. $y = \log_3 (x) + 2$ **b.** $y = \log_2 (x) - 3$

4a. $y = \log (x + 2)$ **b.** $y = \log (x - 3)$

5a. $y = \log_3(x + 2) + 1$ **b.** $y = \log_3 (x - 3) - 2$

6a. $y = \log_5 (x - 1) + 2$ **b.** $y = \log 2 (x + 3) - 2$