# Question 1

* Each letter counts as one symbol
* Assume the most compact representation
* Examples: VIII is 4, MMMMMMMI is 8
* The bar adds one symbol

**Question 2**

* Choose a base for the log first (choose base 2)
* Then plug-in small values for
* Arrive at a small constant positive integer for which
* Then prove by induction on
* Choose a base for the log and guess a
* Along the way, use tricks such as exponentiating with to get rid of nasty terms