1. In the worst case, how many guesses would our guessing game take to get the right answer if we had no hints at all? Explain.

In the worst case, 10 times of guesses are needed for the guessing game take to get the right answer since for example, if the answer is 10 and the player guesses from 1 and added by 1 each time. The result would be 10 times.

2. In the worst case, how many guesses does it take to get the right number if we get a hint of "higher or lower" when guessing numbers 1-10 **and** guess intelligently (always picking in the middle of the remaining set of numbers)?

In the worst case, 4 times, which is the integer of $\log_2 11$ (11 = 1 + 10), would the guessing game take to get the right answer. This strategy is the binary search which takes the middle number of the max and min number in every guess and update the max or min number accordingly.

First guess is 5, if lower, the second guess is 2 since max is updated to 4. If higher, the second guess is 7 as the min number is updated to 6.