2) (10 pts) ANL (Algorithm Analysis)

An algorithm that processes a list of size n takes $O(\sqrt{n}lgn)$ time. On Shannon's computer, when she runs the algorithm on a list of size $\mathbf{n = 2^{16}}$, her computer takes **c** milliseconds. (Shannon is very secretive, so she hasn't told you the value of **c** unfortunately!) **In terms of c,** how long, **in milliseconds,** should we expect the algorithm to take on her computer when she is processing a list of size $\mathbf{2^{20}}$? (Your answer should be of the form kc, where k is a positive real number.)