1. (a) Show that $n^4 - 6n^3 - 18n^2 + 6n + 1 = (n^2 - 3n - 1)^2 - 25n^2$

   (b) Hence find all integers n such that $n^4 - 6n^3 - 18n^2 + 6n + 1$ is prime.

2. Garen and Katarina play 100 games of checkers to determine who is the superior checkers player. How many games must one of them win to be able to say that there is at least a 95% chance they didn't win all their games by luck alone?