Exercise. A true-false test has 10 questions.

(a) In how many ways can a student answer the questions if every question is answered?

(b) In how many ways can a student answer the questions if there is a penalty for guessing and the student leaves some (or all) answers blank?

Exercise. Prove that if $n \in \mathbb{Z}^+$ then $\binom{2n}{n}$ is even.
Exercise. Prove that $\mathbb{R}$ is an infinite set.