Calories in school lunches. India’s Mid-Day Meal scheme mandates that high schools that are part of this scheme must serve lunches that contain at least 700 calories and 20 grams of protein. Suppose a nutritionist believes that the true mean number of calories served at lunch at all high schools that are part of this scheme is less than 700 calories.

a. Identify the parameter of interest.

b. Specify the null and alternative hypotheses for testing this claim.

c. Describe a Type I error in the words of the problem.

d. Describe a Type II error in the words of the problem.

\[ X = \text{number of calories served at lunch at a high school part of the scheme India's Mid-Day Meal} \]
\[ \mu = \text{mean number of calories served at lunch at one of these schools} \]
\[ \text{parameter of interest} \]

b. \( H_0: \mu \geq 700 \)
\( H_1: \mu < 700 \)

c. Type I error = Decide that \( \mu < 700 \) when this is not true.

d. Type II error = Decide that \( \mu \geq 700 \) when, in fact, \( \mu < 700 \).