No calculators are allowed. Show all work clearly and in order. Circle or box your final
answer but points will be awarded based on a correct solution. A solution should always
justify the steps taken and explain the assumptions needed to reach a final answer (e.g.
how do you know you are not dividing by zero in the last step?).

## Q1

Calculate the interquartile range (IQR) for $\{2,\ 4,\ 6,\ 8,\ 10,\ 12,\ 14,\ 16\}$.

## Q2

Consider the data $\{x_i\}_{i=1}^{N}$ with known variance $\sigma^2$.

a) Prove that the mean of *z-score* is zero.

b) Prove that the variance of *z-score* is a natural number. What is this number?