Practice on Discrete Probability Distributions

Consider the probability distribution formula $P(x) = \dfrac{x^2 - 2x + 3}{20}$, where the random variable x = 2, 3, or 4.

1. Using this formula, calculate the three probabilities associated with the given values of the random variable x.

2. Using your answers to part 1, create the probability distribution table.

3. Using your answer to part 2, create a probability histogram for the random variable x.

4. Using the table from part 2, determine the population mean μ and the population standard deviation σ of this probability distribution.