The Discrete Uniform Distribution

1. A fair dice is thrown and its score noted.
    a. If X is the distribution of the scores obtainable, state the distribution of X and any parameters. [1]
    b. Calculate E(X). [2]
    c. Calculate Var(X). [2]

2. A fair spinner has edges numbered 2, 4, 6 and 8. If Y is the score obtained on any one spin of the spinner:
    a. Find E(Y) [2]
    b. Find Var(Y) [3]

3. A fair dice with faces numbered 3, 4, 5, 6, 7 and 8 is thrown. Find the expectation and the variance of the score obtained on throwing the dice. [5]

4. A mini-roulette is spun. The possible outcomes are 5, 8, 11, 14 and 17. Find the expectation and variance of the average score obtained over a large number of spins. [6]

5. A variable has a uniform distribution with n possible outcomes. Given that the variance of the distribution is 10, find the value of n and the expectation of the distribution. [4]