Practice worksheet | Discrete probability distributions

Binomial assumptions

Name: _____ Date: _____

6 questions | 13 marks

1. A fair die is rolled independently 8 times. X counts even scores. State n and p. [2 marks]

2. Ten bulbs are tested independently, each with fault probability 0.03. State a model for the number of faults. [2 marks]

3. Four cards are drawn without replacement from a standard deck. Explain why the heart count is not exactly $\text{Bin}(4, \frac{1}{4})$. [2 marks]

4. A player takes 20 independent shots, with success probability 0.8 for the first 10 and 0.6 for the last 10. Why is the total not exactly $\text{Bin}(20, 0.7)$? [2 marks]

5. An online poll stops when it has collected five positive responses. Identify the fixed-n problem. [2 marks]

6. A factory samples 10 items without replacement from 100,000 items. Explain a possible approximate binomial model and a remaining limitation. [3 marks]