

Discrete Distributions Quiz:

Complete this after Activity 8. When you show me your work, I will give you the answers.

For each question:

- Identify the distribution you use to solve the problem
- Calculate the expected value
- Answer the question

Situation: 7 boys and 10 girls take a test. Each student has a 20% chance of failing the test.

- What is the probability that more than 5 students will fail this test?
- If the students take the test one-after-another, what is the probability that the first failure will come from the second student? What's the probability that the first failure will be the fifth student? What's the probability that the first failure will come before the 6th student?
- If the students take the test one-after-another, what is the probability that the third failure will come from the tenth student?
- Suppose three students fail the exam. What is the probability that at least two of the failures were boys? Do not calculate the expected value for this question.
- Suppose a state experiences an average of three tornados every six months. If the number of tornados observed in any *one-year period* follows a Poisson distribution, calculate the probability of observing between 5 and 7 tornados in a year.