Binomial Probability Distribution

5 Children

A couple plans on having 5 children. What's the probability of having:

Approximate your answers to the nearest thousandths.

1. One girl?
2. At least one girls?
3. More than one girl?
4. No more than one girl?
5. Less than three girls?
6. What is the expected number of girls?
7. What is the standard deviation for this distribution?

6 Children

A couple plans on having 6 children. What's the probability of having:

Approximate your answers to the nearest thousandths.

8. Two girls?
9. At least two girls?
10. More than two girls?
11. No more than two girls?
12. Less than five girls?
13. What is the expected number of girls?
14. What is the standard deviation for this distribution?

Machine

A machine has 8 components that function independently of one another. The probability that a component will fail is 0.085. What's the probability that:

Approximate your answers to the nearest thousandths.

15. Three Components fail?
16. Fewer than three components fail?
17. At least three components fail?
18. More than six components fail?
19. Between one and four components fail?
20. What is the expected number of failed components?
21. What is the standard deviation for this distribution?

Ethnic Minority STEM Students

At a particular college, 25% of STEM students are people of color. In a science class of 9 students, what's the probability that:

Approximate your answers to the nearest thousandths.

22. No ethnic minority students?
23. At least six ethnic minority students?
24. More than two students are ethnic minorities?
25. Less than two students are ethnic minorities?
26. Between one and four students are ethnic minorities?
27. What is the expected number of STEM students that are ethnic minorities?
28. What is the standard deviation for this distribution?

8 Question Multiple Choice Quiz

There is an 8-question multiple choice quiz that has 5 possible answers for each question (a), (b), (c), (d), and (e). If you guess on each question, what's the probability of getting:

Approximate your answers to the nearest thousandths.

29. One correct guess?
30. All correct guesses?
31. At least one correct guess?
32. More than five correct guesses?
33. Between four and seven correct guesses?
34. What is the expected number of correct guesses?
35. What is the standard deviation for this distribution?