**Certain Notations used with Probability Distributions  
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Please review, study and learn well the following notations for probability distributions and be prepared to see them in connection with probability and statistics problems in the Final Exam.

The notation **N(μ, σ)** represents a **Normal Probability Distribution** with mean **μ** and standard deviation **σ**. For example, since the IQ test scores form a normal distribution with a mean of 100 and a standard deviation of 15, the normally distributed IQ test scores can be represented by the notation N(100, 15). The notation N(500, 100) represents a normally distributed population with a mean of 500 and a standard deviation of 100. Finally, the Standard Normal Probability Distribution can be represented by the notation N(0,1), since it has a mean of 0 and a standard deviation of 1.

The notation **B(n, p)** represents a **Binomial Probability Distribution** with **n** number of independent trials and **p** probability of success per trial. Also, given **B(n, p)**, its mean **μ** = n\*p = 3\*(0.25) = 0.75 and its standard deviation **σ** = sqrt(n\*p\*(1-p)). For example, an experiment involving four successive tosses of a coin, considering an outcome of head in each toss as a success, is a binomial probability experiment with four independent trials and probability of success per trial of 0.5 and can be represented as B(4, 0.5). The notation B(3, 0.25) represents a binomial probability distribution of three independent trials and probability of success 0.25. Also, given B(3, 0.25), its mean **μ** = n\*p = 3\*(0.25) = 0.75 and its standard deviation **σ** = sqrt(n\*p\*(1-p)) = sqrt(3\*(0.25)(1-0.25)) = sqrt(0.75\*0.75) = 0.75

The notation **b(n, p, x)** or, equivalently, **P(x|B(n, p))** represents the **probability** of **x** successes in a **binomial probability experiment** of **n** independent trials with **p** probability of success per trial**.** For example, the answer to the problem “What is the probability of getting exactly two Heads in three successive tosses of a coin?” can be written as **b(3, 0.5, 2) = 0.375** or P(2|B(3, 0.5) = 0.375 after using Table III Binomial Probability Experiment page A-3 or after solving the Binomial Probability Formula:

B(3, 0.5, 2) = 3C2(0.5)2(1-0.5)(3-2) = 0.375.

**Question**: In a quiz of 4 questions with each question having 4 multiple choices, only one of which is correct, what is the probability of getting exactly three questions correct by guessing? \_**3/64** or **0.046875**\_\_

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