Stats: The Binomial Distribution NEW

We model with the Binomial distribution if these conditions are met:

1) The experiment has two outcomes with fixed probabilities (success is called 'p')
2) There must be a number of trials of the experiment (called 'n')
3) All trials are independent

This is denoted X~B (n, p). It means 'X is a Binomially distributed random variable with n trials and probability of success p'.

To find individual probabilities like P (X = 7), follow the instructions below.

Casio fx-991CW Classwiz	Casio fx-CG 50
1) Select Distribution on the HOME menu	1) Select Statistics 2 from the menu
2) Select Binomial PD	2) Press F5 for DIST and F5 again for Binomial
3) Select Variable	3) Press F1 for Bpd and F2 for Var
4) Input x, N and p [N is the number of trials]	4) Input x, Numtrial and p [Numtrial: number of trials]
5) Select ◗ Execute and press EXE	5) Press EXE
6) Press EXE to return to the input section	6) Press EXIT to return to the input section

Note 1: x = number of successes required

Note 2: State the Binomial distribution used in the question as part of your answer

Note 3: On an fx-991CW Classwiz, input fractional probabilities as numerator ÷ denominator

E1: Jazz's car starts first time in the morning with probability 0.85. Find the probability it starts first time on exactly five mornings in one full week.

Method

Note n, the number of trials; x, the number of successes; and p, the probability of success.

In this question _____ is the number of trials, n.

Then _____ is the number of successes required, x.

Finally _____ is the value of p.

So X~B (_____ , _____).

Use a calculator to find the probability.

_____ is the answer.

Mean/Expected Value & Variance

For a Binomially distributed variable: The **mean/expected value** is np.
                    The **variance** is np (1 − p).

Formulas for P (X = x), the mean/expected value, and the variance are in the formula booklet.