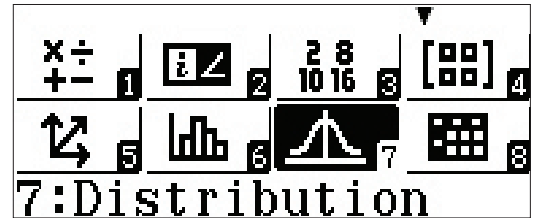


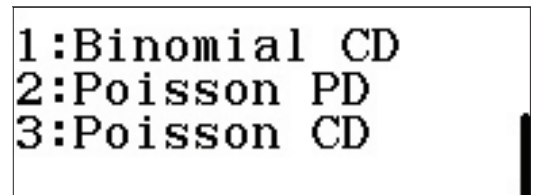
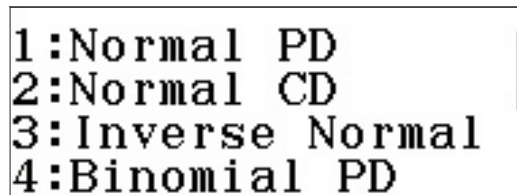
DISTRIBUTION

The fx-991EX can quickly generate probability distribution tables, covering the Normal, Inverse Normal, Binomial, and Poisson distributions.

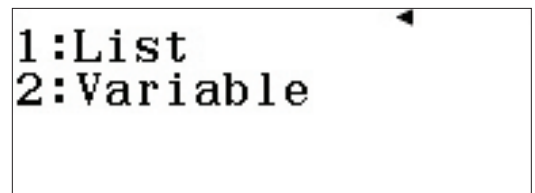
From the Main Menu, use the arrow keys to highlight the Distribution icon, then press \square or press $\boxed{7}$.



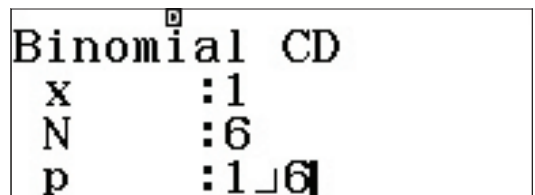
Several distribution choices appear. Use \blacktriangledown to access the second page.



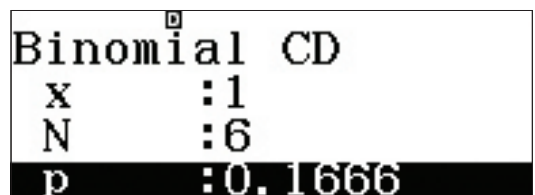
Select $\boxed{1}$ (Binomial CD) from the second page to analyze the following Binomial Distribution problem: “A fair 6-sided die is rolled six times. Find $P(6 \text{ comes up at least twice})$.”



To enter the values of x (number of successes), N (number of trials), and p (probability of success), press $\boxed{2}$ (Variable). Input the values as shown, using \square to create the fraction separator.



After pressing \square to input the value of p , ClassWiz automatically converts the fraction into a decimal for its own purposes.



Press \square again to calculate the probability.

DISTRIBUTION

A probability of 73.7% is displayed.

Because $x = 1$ was entered, the calculator calculated $P(\leq 1 \text{ six is rolled})$. This provides a great opportunity to use the **complement** of an event: $P = 1 - 0.737 = 0.263 = 26.3\%$.

To display the probabilities of obtaining *any* number of sixes in 6 rolls, press **OPTN** **1** (Select Type).

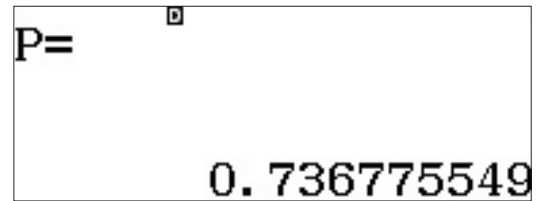
This time, choose **4** (Binomial PD).

Because the calculation is for probabilities for several different numbers of successes, select **1** (List).

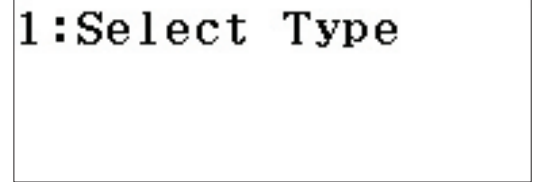
Enter the values 0, 1, 2, 3, 4, 5, and 6 into the "x" column (which represents number of successes). Press **▢** after each input.

Once the final value has been entered, press **▢** again to end the data entry process.

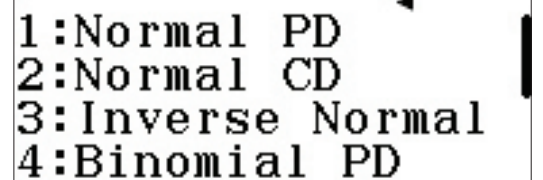
Notice, the values of N and p are preserved from the cumulative probability calculation. (N and p are global calculator variables.)



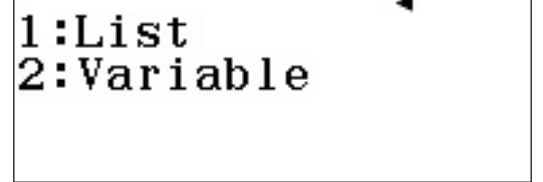
P=
0.736775549



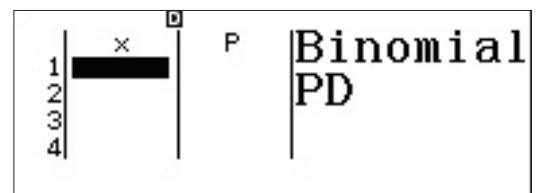
1:Select Type



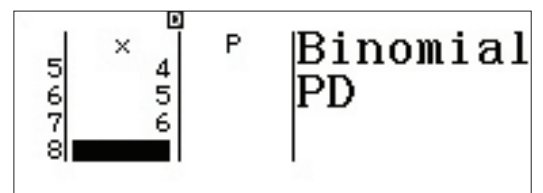
1:Normal PD
2:Normal CD
3:Inverse Normal
4:Binomial PD



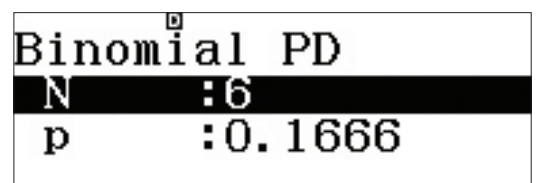
1:List
2:Variable



x	P
1	Binomial PD
2	
3	
4	



x	P
5	Binomial PD
6	
7	
8	



Binomial PD	
N	:6
p	:0.1666

DISTRIBUTION

Press \square one more time to calculate the probability distribution table.

x	P	Binomial PD
1	0.3348	
2	0.4018	
3	0.2009	
4	0.0535	

Notice how the small probabilities are expressed in proper scientific notation!

x	P	Binomial PD
5	8×10^{-3}	
6	6.4×10^{-4}	
7	2.1×10^{-5}	
8		

INVERSE NORMAL

To calculate an Inverse Normal Distribution, press \square \square (Select Type).

```
1:Select Type
2:Editor
```

("Editor" edits the previous PD's data list.)

Select \square (Inverse Normal).

```
1:Normal PD
2:Normal CD
3:Inverse Normal
4:Binomial PD
```

Input the values as shown to answer the question: "If the heights of U.S. males are normally distributed with a mean of 70 inches and a standard deviation of 4 inches, what range defines the tallest 10% of U.S. males?"

```
Inverse Normal
Area :0.9
σ :4
μ :70
```

Press \square once more to reveal the result. To be in the top 10% of U.S. males by height, a man must be over 75 inches (6'3") tall.

```
xInv=
75.12620655
```