Expected Value & TI

What is the expected value?

There are many occasions on which we want to predict how much we are likely to gain or lose if we take a certain action. We can do this by simply computing the mean of a random variable and the value of the mean is often called the expected value.

Finding Expected Value Using TI:

1. Clear all lists: [2ND] > [+] > 4:ClearAllLists > [ENTER]
2. Enter net gains in L1, and corresponding probabilities in L2.
3. Perform basic computation: [STAT] > CALC > 1: 1–Var Stats > L1 , L2
   - If you have a menu on your calculator, then use List: L1 > FreqList: L2 > Calculate
4. **Expected Value** is the value of $\bar{x}$.

Example:

An insurance company sells a one-year term life insurance policy to Mrs. Young for a premium of \$1000. If she dies within one year, the company will pay $\$25,000$ to her beneficiary. Assume the probability that she will be alive one year later is 97.5%, find the expected value of the profit.

Solution:

We begin by entering net gains and corresponding probabilities in L1 and L2:

L1	L2
–1000	.975
25,000 –1000	1–.975

Now perform basic computation as stated above to get $\bar{x} = -375$. The insurance company makes $\$375$ per policy of this type.
