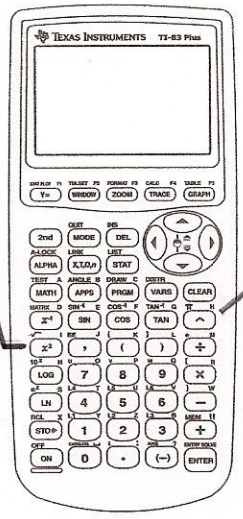
Using the Exponent Key(s)

There are two keys that will help you calculate problems with exponents:

For squared values use the [x^2] key. For higher powers use the key with the "up arrow" [^] .



Example: $3^2 = 9$

3 [x^2] [ENTER]

Example: $(.98)^6$

.98 [^] 6 [ENTER]

Using Composite Water Samples The Orange County Department of Public Health tests water for contamination due to the presence of *E. coli (Escherichia coli)* bacteria. To reduce laboratory costs, water samples from six public swimming areas are combined for one test, and further testing is done only if the combined sample fails. Based on past results, there is a 2% chance of finding *E. coli* bacteria in a public swimming area. Find the probability that a combined sample from six public swimming areas will reveal the presence of *E. coli* bacteria.

Solution: We are given: P(Positive E. coli test) = 0.02
P(Negative E. coli test) = 0.98
there are 6 public swimming areas

0 positive tests all negative tests	at least 1 positive test 1 or 2 or 3 or 4 or 5 or 6

P(S) = 1

P(at least 1 positive test) = 1 - P(all negative tests)
= 1 - (Positive) and (Positive) and (Positive) and (Positive) and (Positive) and (Positive)
= 1 - (.98)(.98)(.98)(.98)(.98)(.98)
= $1 - (.98)^6$
~ 0.114