Appendix A

The Resampling Stats Commands

description:: Matlab has many built-in mathematical functions. Here is a list of the most commonly used operators. (You can get a more complete list by giving the command `help` *name-of-function*)

+ Addition. Example:
>> `3+2`

− Subtraction. Example:
>> `b - 1`

.* Multiplication. Examples:
>> `3.*4` ⇒ *ans: 12*
>> `[3 1 2].* 5.4`
  ans: 16.2 5.4 10.8
>> `a.*b`
Note the dot before the ⋆. Multiplication also works with a plain ⋆, which doesn't have the dot. A plain ⋆ instructs MAT-LAB to perform *matrix* multiplication, which is the same as regular multiplication only when one of the arguments to ⋆ is a single number (a "scalar"). If you don't know what this means, don't worry. If you fail to use the dot when it is required, you will in many cases get an error message:

1

```
??? Error using ==> *
Inner matrix dimensions must agree.
```

Simply remember, when you see this message, to put th
before the `*` (unless you really wanted to perform matrix
tiplication).

`./` Division. Remember the dot, which here serves the same
pose as in multiplication, to distinguish matrix multiplic
from ordinary multiplication.

`sqrt` Square root. `sqrt(4)`

`abs` Absolute value. `abs(x)` `.^` Exponentiation. For examp
find the square deviation from the mean, `(x -mean(x)`

`log` Logarithm.
    $\gg$ `log(10)` $\Rightarrow$ *ans:* *2.3026*
`log` is the "natural logarithm." Use `log10` for the loga
base 10 and `log2` for the base 2 logarithm.

Syntax: Some things to remember about arithmetic operations in
LAB:

- Use parentheses to make sure that the operation you w
being performed. For instance: `x - mean(x).^2` is quit
ferent from `(x-mean(x)).^2`
  $\gg$ `x = [-1 -1 -1]`
  $\gg$ `x - mean(x).^2` $\Rightarrow$ *ans:* *-2 -2 -2*
  $\gg$ `(x - mean(x)).^2` $\Rightarrow$ *ans:* *0 0 0*

- All of the operations will work on vectors or arrays of
bers. The operation is applied to each element individ
For example:
  $\gg$ `[1 2 3].^2` $\Rightarrow$ *ans:* *1 4 9*
  $\gg$ `log([1 2 3])` $\Rightarrow$ *ans:* *0 0.6931 1.0986*

- For operations that involve two vectors, the two vectors
generally be the same size. That is, they should have the
number of elements (and should have the same shape).
can find the shape of a variable with the `size` command
example:
  $\gg$ `[1 2 3] + [4 5 6]` $\Rightarrow$ *ans:* *5 7 9*
  $\gg$ `[1 2 3 4] + [4 5 6]`
    Error: Matrix dimensions must agree.

There is one exception: you can combine a single number with an array of any size. For example:

≫   [2 4 6] + 1 ⇒ *ans:*   *3 5 7*