

## LEFT AND RIGHT SUM PROGRAM FOR TI83, TI83+

To enter a new program, edit or execute an existing one you can use **PRGM** key.

The program below calculates Left and Right Sums of a given function on a given interval with the given number of subintervals. The input are the values of upper and lower bounds ( $a$  and  $b$ ) and the number of subintervals  $n$ . Also, the **given function should be entered as  $Y_1$** . The output of the program are Left and Right Sums.

### PROGRAM: LFTRGTMD

```
: Disp "LOWER BOUND" (to display Disp, choose PRGM then I/O menu)
: Input A (to display Input, choose PRGM then I/O menu)
: Disp "UPPER BOUND"
: Input B
: Disp "NUMBER OF SUBINTERVALS"
: Input N
: 0 → L
: 0 → R
: 0 → M
: (B-A)/N → D
: For (I, 0, N-1) (to display For, choose PRGM then CTL menu)
: A+D*I → X
: L+D* Y1 → L (to display Y1, choose VARS, Y-VARS, then 1: Function)
: End (to display End, choose PRGM then CTL menu)
: Disp "LEFT SUM", L
: For (J, 1, N)
: A+D*J → X
: R+D* Y1 → R
: End
: Disp "RIGHT SUM", R
```

You can exit the program editing by choosing **QUIT**.

**Practice problem.** Approximate the definite integral of the function  $x^2$  on the interval  $[0,2]$  using

- (a) 2 subintervals, (b) 200 subintervals.

**Solution.** To start the program, press **PRGM**. Choose **EXEC** and **LFTRGTMD**. Enter the bounds, number of subintervals and the function  $x^2$  (as  $Y_1$ ).

For part (a) you should get 1 and 5.

For part (b) you should get 2.6467 and 2.6867. Compare the answers from both parts with the exact value 2.6666...