

## Using the Calculator Table Function to Make Life a Little Easier

1. Find the TABLE key on the calculator. Select the TABLE SET option. You have the option of tables being in AUTO mode or ASK mode. For what we want to do here, you should be in ASK mode.
2. We will illustrate using the table in finding slopes of secant lines by using the following example:

The point  $A(1,2)$  lies on the curve  $y = x^2 + x$ . If  $B$  is the point  $(x, x^2 + x)$ , find the slope of the secant line  $AB$  (correct to 3 decimal places) for the following values of  $x$ : 1.5, 1.1, 1.01, 0.5, 0.9, 0.99.

- The equation for the slope of the line  $AB$  can be given by:

$$\frac{y_B - y_A}{x_B - x_A} = \frac{(x^2 + x) - 2}{x - 1}$$

- On your calculator, go to GRAPH, and enter in  $y = \frac{(x^2 + x) - 2}{x - 1}$  (remember to use parentheses generously when entering equations into the calculator).
  - This represents the slope of the secant line  $AB$  at any point  $x$ .
- After entering in the equation, go to TABLE, and select TABLE. You should get a table that has one column,  $x$ , and another  $y$  (or  $y1$ , depending on your calculator)

To find the slope of the secant line when  $x=1.5$ , type in 1.5, and push ENTER, you should get a value of 3.5 in the  $y$  column. If you repeat this for the rest of the values, you should get something that looks like this:

<b>x</b>	<b>y1</b>
<i>1.5</i>	<i>3.5</i>
<i>1.1</i>	<i>3.1</i>
<i>1.01</i>	<i>3.01</i>
<i>0.5</i>	<i>2.5</i>
<i>0.9</i>	<i>2.9</i>
<i>0.99</i>	<i>2.99</i>

It appears that when  $x$  is near 1, the slope of the secant line approaches 3.

Although this seems like a lot, it makes things easier, when working with slopes of lines (section 2.1) and when working with limits (section 2.2)