

Finding the derivative function in STAT mode.

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Select **TABLE** icon (press 7) and **STAT** (press 2) from the main menu or by using the arrow keys to highlight and then press **EXE**.

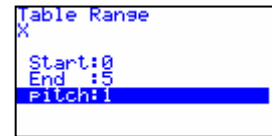
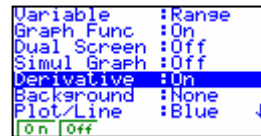


Background: Differentiate a quadratic \rightarrow linear, differentiate a cubic \rightarrow quadratic...

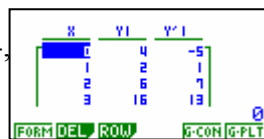
$$d(x^n)/dx = nx^{n-1}$$

Example 1:

Find the **gradient function** of the curve $y = 3x^2 - 5x + 4$.



Enter $y_1 = 3x^2 - 5x + 4$,
few
In the **TABLE** icon.
points



Change the SET UP

You need a

[SHIFT] [MENU],

co-ordinate

so that you can turn
then

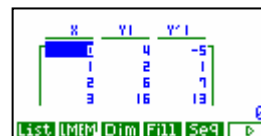
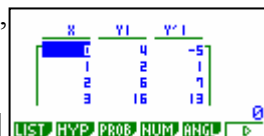
[F5], change,

the derivative on

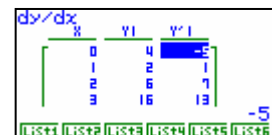
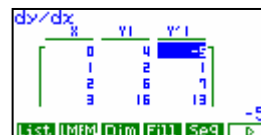
[EXIT].

[F1], then [EXIT].

To move the x-column,
place the cursor in the
column, then [OPTN]
[F1] for LIST and [F2]
for LMEM (List memory)
and [F1] for List 1.



Repeat the above instructions for the
Y'1-column, BUT [F2] for depositing these
Y'1 values in list 2.



Return to the **MAIN MENU** and enter into the **STAT** icon.

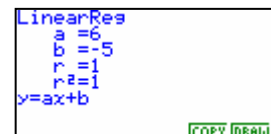


The x and Y'1 value can
be seen in List 1 and List 2
spaces.



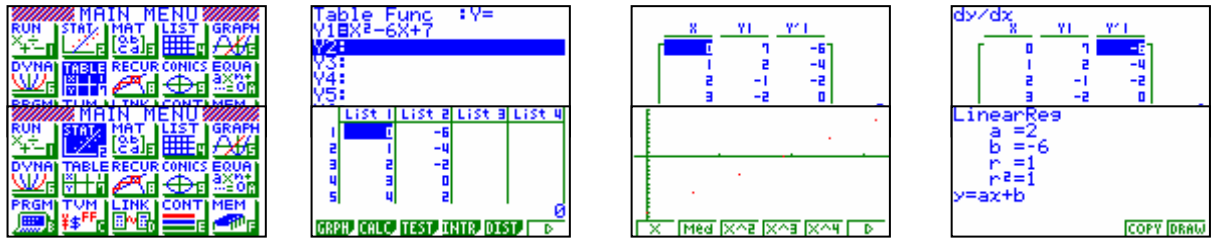
Draw a scattergraph and select the linear model [F1] giving $y = ax + b$,

but in this instance it is: $\frac{dy}{dx} = 6x - 5$



Example 2:

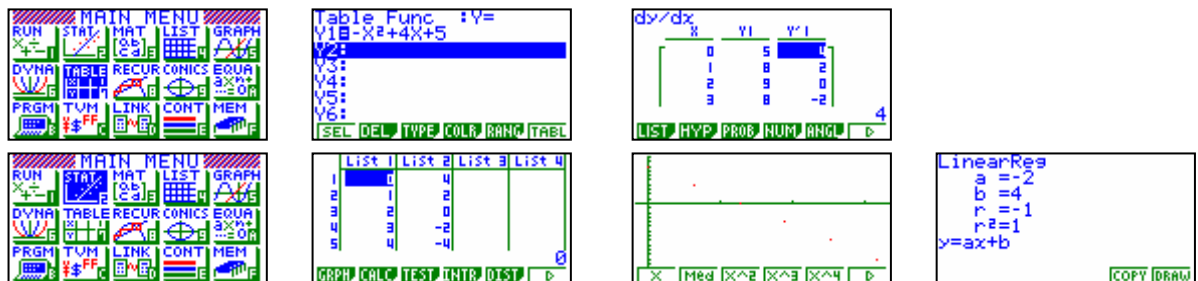
Find the gradient function of the curve $y = x^2 - 6x + 7$.
Repeat the above instructions in Example 1.



Draw a scattergraph and select the linear model: $\frac{dy}{dx} = 2x - 6$

Example 3:

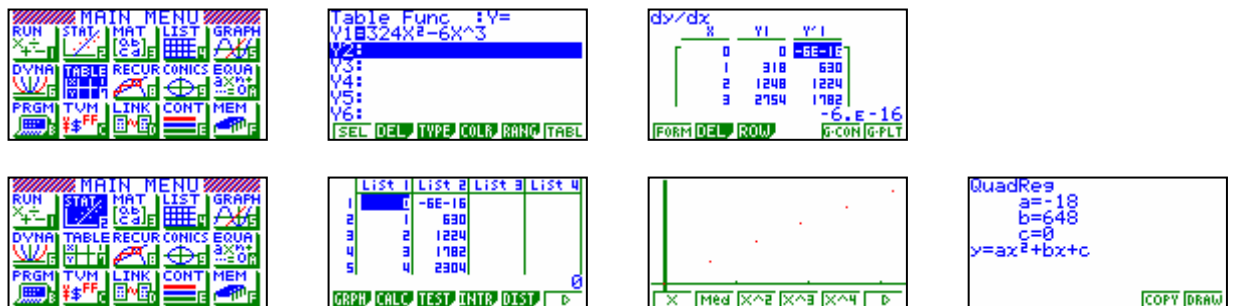
Find the **gradient function** of the curve $y = -x^2 + 4x + 5$.
Repeat the above instructions in Example 1.



Draw a scattergraph and select the linear model: $\frac{dy}{dx} = -2x + 4$

Example 4:

Find the **gradient function** of the curve $y = 324x^2 - 6x^3$.
Repeat the above instructions in Example 1.



Draw a scattergraph and select the quadratic model: $\frac{dV}{dx} = -18x^2 + 648x$