Algebraic substitution - numeric.

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Select RUN mode from the main menu by using the arrow keys to highlight the RUN icon or pressing 1.

This worksheet shows how the calculator can be used to substitute numerical values into algebraic expressions.

Introduction: Algebraic substitution is where an independent numerical variable, usually *x*, is substituted into an equation for a dependent variable, usually *y*.

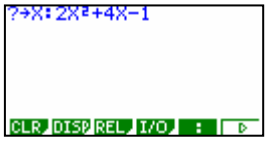
Hints: To have '?' and ':' statements, the menu trail is:

SHIFT **VARS**, then **F4** for the **?**

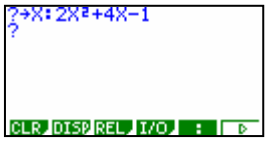
and **SHIFT** **VARS**, then **F6** followed by **F5**.

Example 1: Calculate the value of the following when x = -2, 0, 2 and 4, in the expression $2x^2 + 4x - 1$.

Answer: Type in ? → x: $2x^2 + 4x - 1$

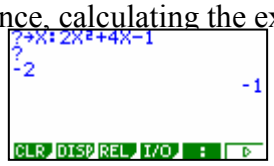


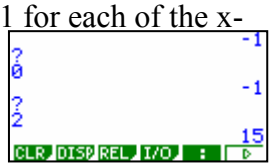
Then press **EXE** to initiate this expression.
A '**?**' will display, this is the calculators way of saying, "Enter in a number."



Enter in -2, then press **EXE** the answer -1 is displayed, the calculator has done this: **$2x(-2)^2 + 4x(-2) - 1 = -1$**

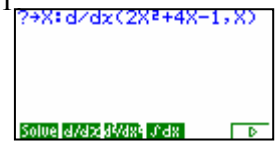
Press **EXE** again, this brings up the '**?**' again, type in 0 and press **EXE** and repeat the above sequence, calculating the expression of $2x^2 + 4x - 1$ for each of the x-values required.

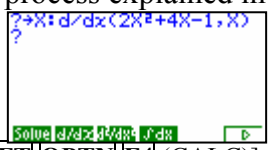




Example 2: Calculate the **f′(x)** values of the following, when x = -2, 0, 2 and 4, expression given by $f(x) = 2x^2 + 4x - 1$

Answer: Type in ? → x: d/dx($2x^2 + 4x - 1$,x) and repeat the process explained in example 1.





[Note: Differentiation d/dx is **SHIFT** **OPTN** **F4** (CALC)]