2.7 Composite functions

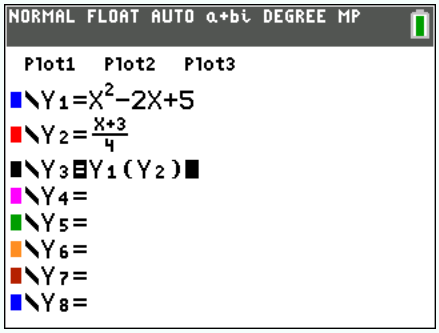
2.7.1 Graph the composition of two functions

Suppose you want graph $(f \circ g)(x)$ for the following functions:

$$f(x) = x^2 - 2x + 5, \qquad g(x) = \frac{x+3}{4}.$$

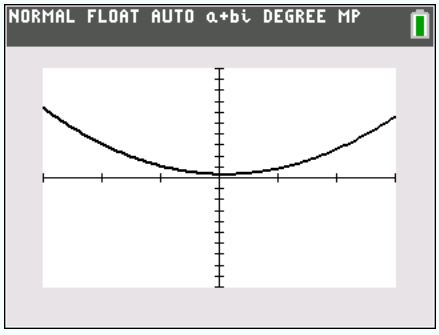
① Enter the two functions f and g as Y_1 and Y_2 by pressing stat plot f1 y= , and deactivate the graph of the two functions (see points ① and ② of subtopic 2.3.3 on page 39 for the details)

② Select Y_3, and write the following:



Y_1 and Y_2 are accessed by pressing A-lock alpha and calc f4 trace

③ Choose an appropriate window (see 2.3.2 on page 37 for the details).The following graph should be displayed (with `Xmin=-30`, `Xmax=30`, `Ymin=-100`, `Xmax=100`:



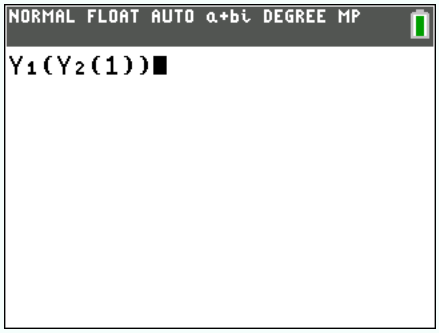
2.7.2 Compute specific value of the composition of two functions

Suppose you want to evaluate $(f \circ g)(1)$ for the following functions:

$$f(x) = x^2 - 2x + 5 \qquad g(x) = \frac{x+3}{4}.$$

① Enter the two functions f and g as Y_1 and Y_2 by pressing stat plot f1 y= ,

② On the main screen, write the following:



Y_1 and Y_2 are accessed by pressing A-lock alpha and calc f4 trace

The result should be 4. Thus $(f \circ g)(1) = 4$.