For a function f, define a sequence recursively by $x_n = f(x_{n-1})$ for $n > 1$ and $x_1 = a$. Depending on f and the starting value a, this sequence may converge to a limit L. If L exists, it has the property that $f(L) = L$. For the functions and starting values in Problems 57–58, use a calculator to see if the sequence converges. [To obtain the terms of the sequence, repeatedly push the function button.]

57. $f(x) = \cos x,\, a = 0$ 58. $f(x) = e^{-x},\, a = 0$