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**Exercise 1 (Function functions)**

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Let the following piecewise continuous function be given:

$$f(x) = \begin{cases} -\sin(x) & x < 0 \\ x^2 & 0 \leq x \leq 1 \\ \frac{1}{x} & x > 1 \end{cases}$$

- a) Write a function file that computes  $f(x)$  (signature: `function y = f_stk(x)`). Ensure that a vector-valued call of the function is possible.
- b) Plot the function for the interval  $[-\frac{\pi}{2}, \pi]$  with `plot`.