Chapter 5, Solution 86.

Design a voltage controlled ideal current source (within the operating limits of the op amp) where the output current is equal to $200v_s(t)$ μA.

The easiest way to solve this problem is to understand that the op amp creates an output voltage so that the current through the feedback resistor remains equal to the input current.

In the following circuit, the op amp wants to keep the voltage at a equal to zero. So, the input current is $v_s/R = 200v_s(t)$ μA = $v_s(t)/5k$.

Thus, this circuit acts like an ideal voltage controlled current source no matter what (within the operational parameters of the op amp) is connected between a and b. Note, you can change the direction of the current between a and b by sending $v_s(t)$ through an inverting op amp circuit.