Special Problem 5.5-2

The transistor in the circuit below has a DC drain-to-source voltage of 6.0 volts.

The transistor is operating in the ideal region for small signal amplification.

The output resistance $r_o$ of the transistor is 50 K ohms.

What is the small signal gain of this amplifier ($A_v = v_o/v_i$)?

$$v_o = 6.0 + v_o$$

$$v_i = V_i + v_i$$

$V_i = 1.0$ V

$K = 0.1$ mA/V$^2$

$r_o = 50$ K