Special Problem 3.3-2

For the circuit given below, the voltage source is given as $v_S = 7.4 + v_s(t)$. The signal $v_s(t)$ is a very small ($|v_s(t)| < 10\ mV$) time-varying signal. When $v_s(t) = 0$, the output voltage is $v_O = 1.4\ V$. The output voltage can therefore be specified as $v_O = 1.4 + v_o(t)$, where $v_o(t)$ is the small signal resulting from $v_s(t)$. Find $v_o(t)$ in terms of $v_s(t)$. The ideality factor for the diodes is $n=2$.