Special Problem 3.3-3

The voltage source for this circuit has a DC value of \( V_s = 3.4 \) V, and a small-signal component of \( v_s(t) \). The resulting current from the source has a DC component \( I \), and a small-signal component \( i_s(t) \).

The diodes are junction diodes, with ideality factors shown in the circuit. Both diodes are forward biased in this circuit.

Find the ratio \( v_s(t) / i_s(t) \).

Hint: Note that the ratio \( v_s(t) / i_s(t) \) is in units of resistance.