a. Find the Thevenin equivalent voltage, short circuit current, and Thevenin resistance for terminals a-b. Reduce your equations to a simple form, leaving K as a variable.

b. Take the derivative of your Thevenin voltage equation with respect to K, and use that derivative to determine how much V_{th} changes when K doubles.
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\[ V_{oc} = 21 - K I_o \]

\[ V_{oc} = 21 + 7K = V_{TH} \]

\[ I_{sc} = 7 - \frac{V_1}{3} = 7 - \frac{84}{7+K} \]

\[ I_{sc} = \frac{21 + 7K}{7+K} \]

\[ Z_{TH} = \frac{V_{oc}}{I_{sc}} = \frac{(21+7K)(7+K)}{(21+7K)} \]

\[ Z_{TH} = 7 + K \]

\[ \frac{dV_{oc}}{K} = 7 \]

\[ \Delta V_{oc} = \frac{dV_{oc}}{dK} \Delta K = 7K \]
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