Problem 1:
Find i and V_x given the figure and values below.

\[ -10V - 5i + V_{R1} + V_x = 0 \]
\[ i = \frac{V_x}{5} \]
\[ V_{R1} = 10 \]
\[ i = \frac{V_x}{5} \]
\[ V_x = \frac{5}{5} \]
\[ V_{S2} = 5V \]

Problem 2

Given:
\[ R_1 = 1 \, \text{kΩ}, R_2 = 2 \, \text{kΩ}, \quad V_S = 5 \, \text{V}, V_C = 15 \, \text{V}, V_{BE} = 1 \, \text{V}, V_{CE} = 0.5 \, \text{V} \]

Find: \( V_{R1}, V_{R2}, i_{R1}, i_{R2} \)

Note: Do you best on hand calculations. Make sure equations and methods are clear.

KVL Loop 1:
\[ -V_S + V_{R1} + V_{BE} = 0 \]
\[ V_{R1} = R_1 i_{R1} \]
\[ -5 + V_{R1} + 1 = 0 \]
\[ V_{R1} = 5 \]
\[ i_{R1} = \frac{V_{R1}}{R_1} = \frac{4V}{1000} \Omega \]
\[ i_{R1} = 0.004 \, \text{A} \]

KVL Loop 2:
\[ -V_C + V_{R2} + V_{BE} = 0 \]
\[ V_{R2} = R_2 i_{R2} \]
\[ i_{R2} = \frac{V_{R2}}{R_2} \]
\[ V_{R2} = 14.5 \, \text{V} \]
\[ i_{R2} = 0.00725 \, \text{A} \]