A charge of 20 C and another charge -10 C are located 3 m apart. Find all the points on the line passing through the two charges where the potential is zero.

\[ \frac{\kappa(20)}{3-x_1} + \frac{\kappa(-10)}{x_1} = 0 \]

\[ \frac{2}{3-x_1} = \frac{1}{x_1} \]

\[ 2x_1 = 3 - x_1 \]

\[ x_1 = 1 \text{ m} \]

\[ \frac{\kappa(20)}{3+x_2} + \frac{\kappa(-10)}{x_2} = 0 \]

\[ \frac{2}{3+x_2} = \frac{1}{x_2} \]

\[ 2x_2 = 3 + x_2 \]

\[ x_2 = 3 \text{ m} \]