Two-Point Form of an Equation of a Line

An equation of the line passing through the distinct points (x_1, y_1) and (x_2, y_2) is

$$det \begin{bmatrix} x & y & 1 \\ x_1 & y_1 & 1 \\ x_2 & y_2 & 1 \end{bmatrix} = 0$$