Application of determinants:

- Area of triangle with vertices $(x_1, y_1), (x_2, y_2), (x_3, y_3)$ is:

$$\Delta = \left| \frac{1}{2} \begin{vmatrix} x_1 & y_1 & 1 \\ x_2 & y_2 & 1 \\ x_3 & y_3 & 1 \end{vmatrix} \right|$$

Note: If $\Delta = 0$, then points are collinear .

- Equation of straight line passing through points (x_1, y_1) & (x_2, y_2) is :

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

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