

Derivation of plane equation

$$\begin{pmatrix} x_1 \\ x_2 \\ x_3 \end{pmatrix} := \overrightarrow{OP} + s\overrightarrow{PQ} + t\overrightarrow{PR}$$

$$x_1 = (OP)_1 + s(PQ)_1 + t(PR)_1$$

$$x_2 = (OP)_2 + s(PQ)_2 + t(PR)_2$$

$$x_3 = (OP)_3 + s(PQ)_3 + t(PR)_3$$

$$s = \frac{x_1 - (OP)_1 - t(PR)_1}{(PQ)_1}$$

$$x_2 = (OP)_2 + \left(\frac{x_1 - (OP)_1 - t(PR)_1}{(PQ)_1} \right) (PQ)_2 + t(PR)_2$$

$$= \text{TODO}$$

$$t = \frac{x_3 - (OP)_3 - s(PQ)_3}{(PR)_3}$$

This should result in $\overrightarrow{PQ} \times \overrightarrow{PR}$ in the coefficients of x_{1-3} , leading to the form $ax_1 + bx_2 + cx_3 + d = 0$.