

$$\text{eqn_line}(x1, y1, x2, y2) := \left\| \begin{array}{l} m \leftarrow \frac{y2 - y1}{x2 - x1} \\ b \leftarrow -x1 \cdot m + y1 \\ \text{return} \begin{bmatrix} m \\ b \end{bmatrix} \end{array} \right\|$$

$$\text{intersect}(m1, b1, m2, b2) := \left\| \begin{array}{l} xy \leftarrow \begin{bmatrix} -m1 & 1 \\ -m2 & 1 \end{bmatrix}^{-1} \cdot \begin{bmatrix} b1 \\ b2 \end{bmatrix} \\ \text{return } xy \end{array} \right\|$$

$$x_{11} := -1 \quad y_{11} := 0 \quad x_{12} := 0 \quad y_{12} := 1$$

$$L_{1_b} := \text{eqn_line}(x_{11}, y_{11}, x_{12}, y_{12}) = \begin{bmatrix} 1 \\ 1 \end{bmatrix}$$

$$x_{21} := -1 \quad y_{21} := 0 \quad x_{22} := 0 \quad y_{22} := -1$$

$$L_{2_g} := \text{eqn_line}(x_{21}, y_{21}, x_{22}, y_{22}) = \begin{bmatrix} -1 \\ -1 \end{bmatrix}$$

$$x_{31} := 0.8 \quad y_{31} := 0 \quad x_{32} := 0 \quad y_{32} := 0.8$$

$$L_{3_c} := \text{eqn_line}(x_{31}, y_{31}, x_{32}, y_{32}) = \begin{bmatrix} -1 \\ 0.8 \end{bmatrix}$$

$$x_{41} := 0.4 \quad y_{41} := 0 \quad x_{42} := 0 \quad y_{42} := -0.4$$

$$L_{4_r} := \text{eqn_line}(x_{41}, y_{41}, x_{42}, y_{42}) = \begin{bmatrix} 1 \\ -0.4 \end{bmatrix}$$

$$\begin{bmatrix} x_{int1} \\ y_{int1} \end{bmatrix} := \text{intersect}(L_{1_b_0}, L_{1_b_1}, L_{3_c_0}, L_{3_c_1}) = \begin{bmatrix} -0.1 \\ 0.9 \end{bmatrix} \quad x_b := \begin{bmatrix} x_{11} \\ x_{int1} \end{bmatrix} \quad y_b := \begin{bmatrix} y_{11} \\ y_{int1} \end{bmatrix}$$

$$\begin{bmatrix} x_{int2} \\ y_{int2} \end{bmatrix} := \text{intersect}(L_{2_g_0}, L_{2_g_1}, L_{4_r_0}, L_{4_r_1}) = \begin{bmatrix} -0.3 \\ -0.7 \end{bmatrix} \quad x_g := \begin{bmatrix} x_{21} \\ x_{int2} \end{bmatrix} \quad y_g := \begin{bmatrix} y_{21} \\ y_{int2} \end{bmatrix}$$

$$\begin{bmatrix} x_{int3} \\ y_{int3} \end{bmatrix} := \text{intersect}(L_{3_c_0}, L_{3_c_1}, L_{4_r_0}, L_{4_r_1}) = \begin{bmatrix} 0.6 \\ 0.2 \end{bmatrix} \quad x_c := \begin{bmatrix} x_{int1} \\ x_{int3} \end{bmatrix} \quad y_c := \begin{bmatrix} y_{int1} \\ y_{int3} \end{bmatrix}$$

$$x_r := \begin{bmatrix} x_{int2} \\ x_{int3} \end{bmatrix} \quad y_r := \begin{bmatrix} y_{int2} \\ y_{int3} \end{bmatrix}$$

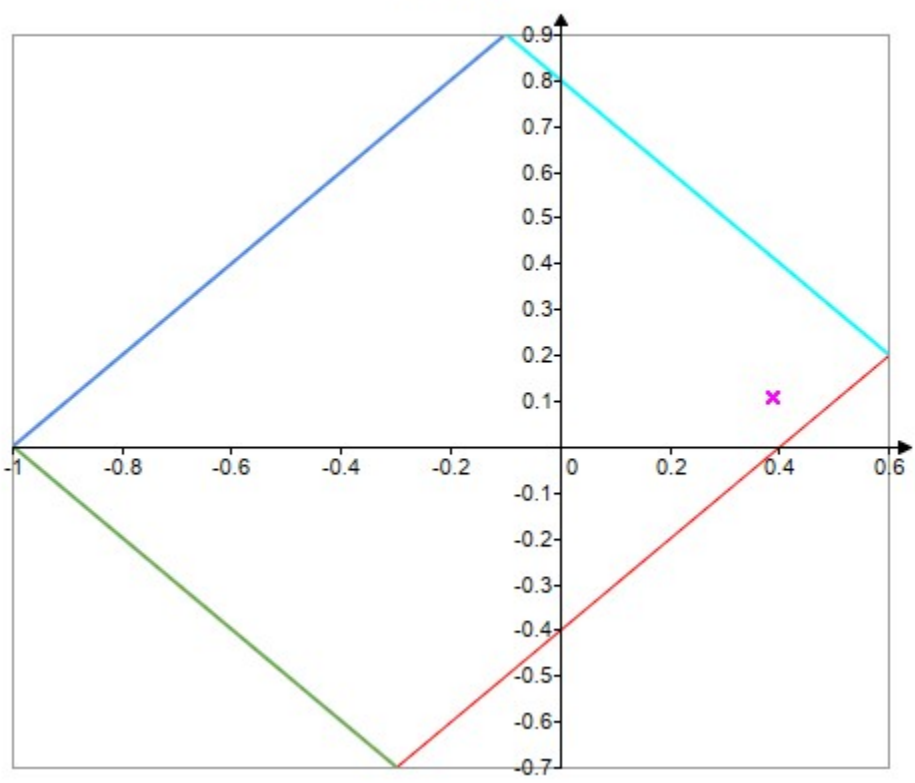
$$x_{plot} := 0.388$$

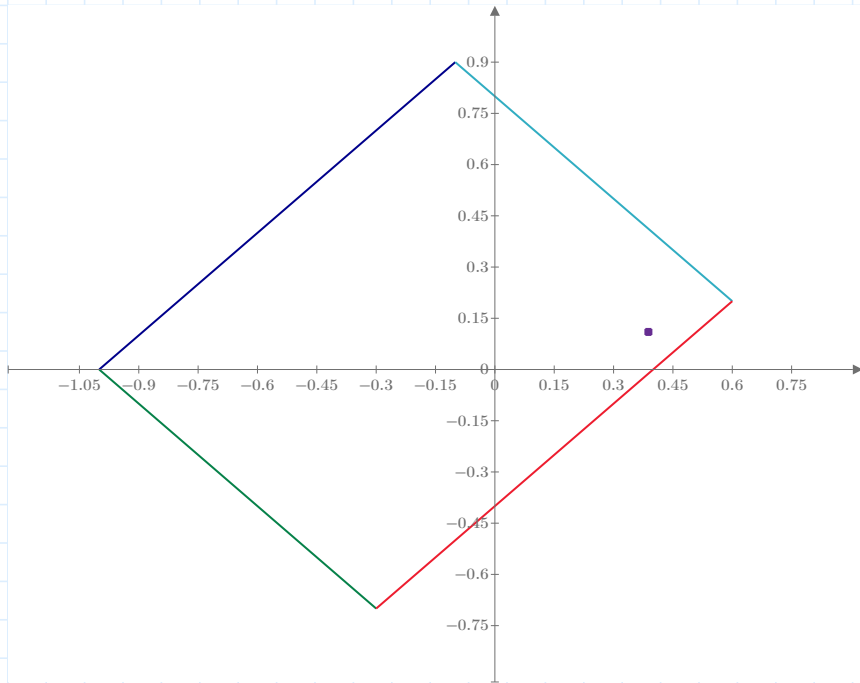
$$y_{plot} := 0.11$$

Inputs

$X_1 := x_b$ $Y_1 := y_b$ $X_3 := x_c$ $Y_3 := y_c$
 $X_2 := x_g$ $Y_2 := y_g$ $X_4 := x_r$ $Y_4 := y_r$
 $X_5 := x_{plot}$ $Y_5 := y_{plot}$

Nomograph for Checking Fr & M1





y_b

y_c

y_g

y_r

y_{plot}



x_b

x_c

x_g

x_r

x_{plot}

