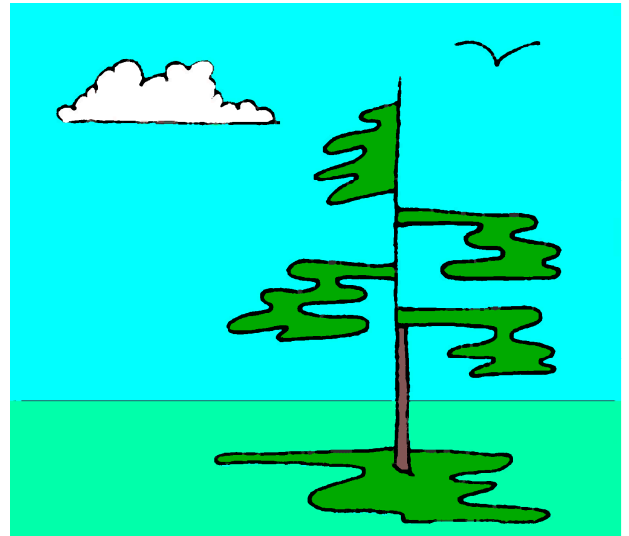
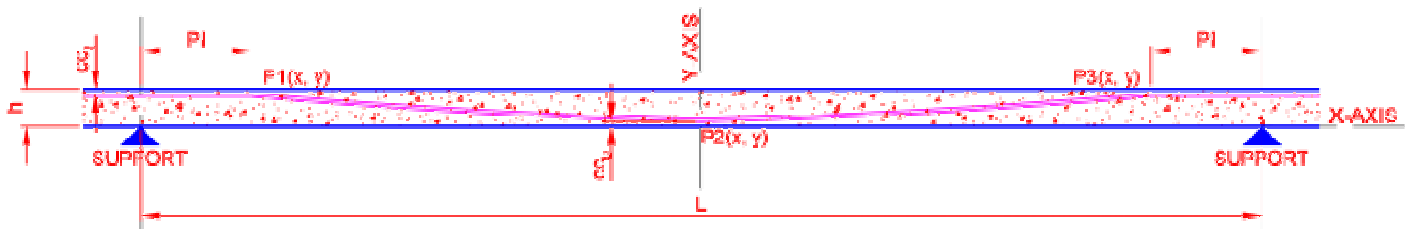


**NorthWoods Software****Tendon\_Profile****Project Name:****Project Number:****Project Description:****Project Designer:** Dik**Last Revised (yy-mm-dd):** 18-03-27**Reference:** N/A**Input Data**

$L := 7.000 \text{ m}$	Slab Span
$h := 200 \text{ mm}$	Slab Thickness
$cc_t := 25 \text{ mm}$	Clear Cover to Top Strand
$cc_b := 25 \text{ mm}$	Clear Cover to Bottom Strand
$\varphi_s := 15 \text{ mm}$	OD of Strand
$PI := 0.6 \text{ m}$	Inflection Point from Support Centre

**Calculate:****Interior Span****Calculate Three Points on Curve:****Point P1**

$$x1 := -\frac{L}{2} + PI$$

$$y1 := h - cc_t - \varphi_s$$

$$x1 = -2.9 \text{ m}$$

$$y1 = 0.16 \text{ m}$$

$$P1 := \begin{bmatrix} x1 & y1 \end{bmatrix}$$

**Point P2**

$$x2 := 0$$

$$y2 := cc_b$$

$$x2 = 0 \text{ m}$$

$$y2 = 0.025 \text{ m}$$

$$P2 := \begin{bmatrix} x2 & y2 \end{bmatrix}$$

**Point P3**

$$x3 := \left( \frac{L}{2} - PI \right)$$

$$y3 := h - cc_t - \varphi_s \quad x3 = 2.9 \text{ m} \quad y3 = 0.16 \text{ m} \quad P3 := \begin{bmatrix} x3 & y3 \end{bmatrix}$$

**Quadratic Equation**

$$f(x) := A \cdot x^2 + B \cdot x + C$$

$$M_1 := \begin{bmatrix} \frac{P1}{2} & \frac{P1}{2} & 1 \\ \frac{P2}{2} & \frac{P2}{2} & 1 \\ \frac{P3}{2} & \frac{P3}{2} & 1 \end{bmatrix}$$

$$M_2 := \begin{bmatrix} P1 \\ P2 \\ P3 \end{bmatrix}$$

**Determinant**

$$|M_1| = -48.78$$

**Solution Set**

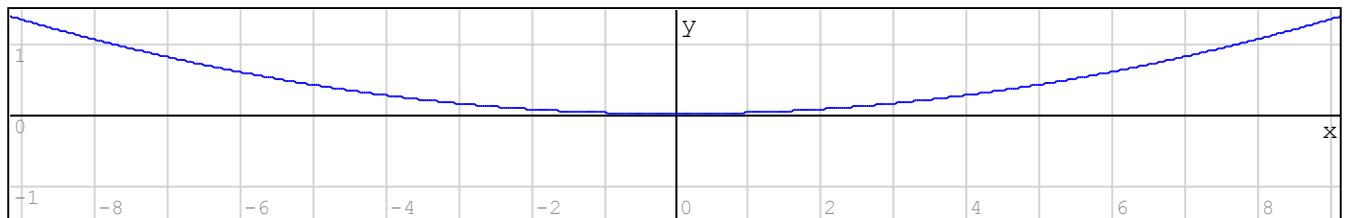
$$X := M_1^{-1} \cdot M_2 \quad X = \begin{bmatrix} 0.02 \text{ m} \\ 0 \\ 0.02 \text{ m} \end{bmatrix} \quad \begin{aligned} A &:= X_1 \\ B &:= X_2 \\ C &:= X_3 \end{aligned}$$

**Check**

$$f(x) := A \cdot x^2 + B \cdot x + C$$

$$f(-2.9) = 0.16 \text{ m}$$

$$f(0) = 0.025 \text{ m}$$



$$A \cdot x^2 + B \cdot x + C$$