$$g\!\coloneqq\!9.80665$$

$$a\!\coloneqq\!l$$

$$v_0 = 0$$

$$k = 0.3$$

 w_0 :=

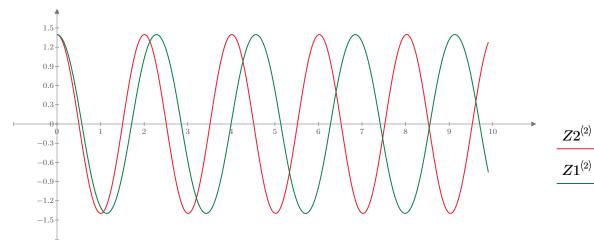
$$\varphi_0 \coloneqq \frac{\pi}{180} \cdot 80$$

$$y \coloneqq \begin{bmatrix} v_0 \\ \varphi_0 \end{bmatrix}$$

$$y \coloneqq \begin{bmatrix} v_0 \\ \varphi_0 \end{bmatrix} \qquad \qquad D1\left(t\,,y\right) \coloneqq \begin{bmatrix} -w_0^{\ 2} \cdot \sin\left(y_1\right) - k \cdot y_0 + a \cdot \sin\left(w_1 \cdot t\right) \\ y_0 \end{bmatrix} \quad Z1 \coloneqq \text{rkfixed}\left(y_1\right) + a \cdot \sin\left(w_1 \cdot t\right) = \begin{bmatrix} -w_0^{\ 2} \cdot \sin\left(y_1\right) - k \cdot y_0 + a \cdot \sin\left(w_1 \cdot t\right) \\ y_0 \end{bmatrix} \quad Z1 \coloneqq \text{rkfixed}\left(y_1\right) + a \cdot \sin\left(w_1 \cdot t\right) = \begin{bmatrix} -w_0^{\ 2} \cdot \sin\left(y_1\right) - k \cdot y_0 + a \cdot \sin\left(w_1 \cdot t\right) \\ y_0 \end{bmatrix} \quad Z1 \coloneqq \text{rkfixed}\left(y_1\right) + a \cdot \sin\left(w_1 \cdot t\right) = \begin{bmatrix} -w_0^{\ 2} \cdot \sin\left(y_1\right) - k \cdot y_0 + a \cdot \sin\left(w_1 \cdot t\right) \\ y_0 \end{bmatrix} \quad Z1 \coloneqq \text{rkfixed}\left(y_1\right) + a \cdot \sin\left(w_1 \cdot t\right) = \begin{bmatrix} -w_0^{\ 2} \cdot \sin\left(y_1\right) - k \cdot y_0 + a \cdot \sin\left(w_1 \cdot t\right) \\ y_0 \end{bmatrix} \quad Z1 \coloneqq \text{rkfixed}\left(y_1\right) + a \cdot \sin\left(w_1 \cdot t\right) = \begin{bmatrix} -w_0^{\ 2} \cdot \sin\left(y_1\right) - k \cdot y_0 + a \cdot \sin\left(w_1 \cdot t\right) \\ y_0 \end{bmatrix} \quad Z1 \coloneqq \text{rkfixed}\left(y_1\right) + a \cdot \sin\left(w_1 \cdot t\right) = \begin{bmatrix} -w_0^{\ 2} \cdot \sin\left(y_1\right) - k \cdot y_0 + a \cdot \sin\left(w_1 \cdot t\right) \\ y_0 \end{bmatrix} \quad Z1 \coloneqq \text{rkfixed}\left(y_1\right) + a \cdot \sin\left(w_1 \cdot t\right) = \begin{bmatrix} -w_0^{\ 2} \cdot \sin\left(y_1\right) - k \cdot y_0 + a \cdot \sin\left(w_1 \cdot t\right) \\ y_0 \end{bmatrix} \quad Z1 \coloneqq \text{rkfixed}\left(y_1\right) + a \cdot \sin\left(w_1 \cdot t\right) = \begin{bmatrix} -w_0^{\ 2} \cdot \sin\left(y_1\right) - k \cdot y_0 + a \cdot \sin\left(w_1 \cdot t\right) \\ y_0 \end{bmatrix} \quad Z1 \coloneqq \text{rkfixed}\left(y_1\right) + a \cdot \sin\left(w_1 \cdot t\right) = \begin{bmatrix} -w_0^{\ 2} \cdot \sin\left(w_1 \cdot t\right) - k \cdot y_0 + a \cdot \sin\left(w_1 \cdot t\right) \\ y_0 \end{bmatrix} \quad Z1 \coloneqq \text{rkfixed}\left(y_1\right) + a \cdot \sin\left(w_1 \cdot t\right) = \begin{bmatrix} -w_0^{\ 2} \cdot \sin\left(w_1 \cdot t\right) - k \cdot y_0 + a \cdot \sin\left(w_1 \cdot t\right) \\ y_0 \end{bmatrix} \quad Z1 \coloneqq \text{rkfixed}\left(y_1\right) + a \cdot \sin\left(w_1 \cdot t\right) = \begin{bmatrix} -w_0^{\ 2} \cdot \sin\left(w_1 \cdot t\right) - k \cdot y_0 + a \cdot \sin\left(w_1 \cdot t\right) \\ y_0 \end{bmatrix} \quad Z1 \coloneqq \text{rkfixed}\left(y_1\right) + a \cdot \sin\left(w_1 \cdot t\right) = \begin{bmatrix} -w_0^{\ 2} \cdot \sin\left(w_1 \cdot t\right) - k \cdot y_0 + a \cdot \sin\left(w_1 \cdot t\right) \\ y_0 \end{bmatrix} \quad Z1 \coloneqq \text{rkfixed}\left(y_1\right) + a \cdot \sin\left(w_1 \cdot t\right) = \begin{bmatrix} -w_0^{\ 2} \cdot \sin\left(w_1 \cdot t\right) - k \cdot y_0 + a \cdot \sin\left(w_1 \cdot t\right) \\ y_0 \end{bmatrix} \quad Z1 \coloneqq x_0 + a \cdot y_0 + a \cdot$$

$$D2\left(t,y\right)\coloneqq\begin{bmatrix}-{w_0}^2\boldsymbol{\cdot} y_{_1}\!-\!k\boldsymbol{\cdot} y_{_0}\\ y_{_0}\end{bmatrix}$$

$$Z2 = \text{rkfixed}$$



 $Z2^{\langle 0
angle}$

$$Z1^{\langle 0
angle}$$