

$$\begin{aligned} &> \text{restart}; \\ &> \text{alphan} := \text{an} \cdot \text{Kernel} \cdot \cos(\text{phin}); \\ &\quad \text{alphan} := \text{an Kernel} \cos(\text{phin}) \end{aligned} \tag{1}$$

$$\begin{aligned} &> \text{betan} := \text{an} \cdot \text{Kernel} \cdot \sin(\text{phin}); \\ &\quad \text{betan} := \text{an Kernel} \sin(\text{phin}) \end{aligned} \tag{2}$$

$$\begin{aligned} &> z := t \rightarrow \text{An} \cdot \cos\left(\frac{2 \cdot \pi \cdot n \cdot t}{T}\right) + \text{Bn} \cdot \sin\left(\frac{2 \cdot \pi \cdot n \cdot t}{T}\right); \\ &\quad z := t \rightarrow \text{An} \cos\left(\frac{2 \pi n t}{T}\right) + \text{Bn} \sin\left(\frac{2 \pi n t}{T}\right) \end{aligned} \tag{3}$$

$$\begin{aligned} &> \text{An} := \frac{kD \cdot \text{alphan} \cdot \left(k + kD - m \cdot \left(\frac{2 \cdot \pi \cdot n}{T}\right)^2\right) - kD \cdot \text{betan} \cdot b \cdot \left(\frac{2 \cdot \pi \cdot n}{T}\right)}{\left(k + kD - m \cdot \left(\frac{2 \cdot \pi \cdot n}{T}\right)^2\right)^2 + b^2 \cdot \left(\frac{2 \cdot \pi \cdot n}{T}\right)^2}; \\ &\text{An} := \end{aligned} \tag{4}$$

$$\frac{1}{\left(k + kD - \frac{4 m \pi^2 n^2}{T^2}\right)^2 + \frac{4 b^2 \pi^2 n^2}{T^2}} \left(kD \text{an Kernel} \cos(\text{phin}) \left(k + kD - \frac{4 m \pi^2 n^2}{T^2}\right) - \frac{2 kD \text{an Kernel} \sin(\text{phin}) b \pi n}{T} \right)$$

$$\begin{aligned} &> \text{Bn} := \frac{kD \cdot \text{betan} \cdot \left(k + kD - m \cdot \left(\frac{2 \cdot \pi \cdot n}{T}\right)^2\right) + kD \cdot \text{alphan} \cdot b \cdot \left(\frac{2 \cdot \pi \cdot n}{T}\right)}{\left(k + kD - m \cdot \left(\frac{2 \cdot \pi \cdot n}{T}\right)^2\right)^2 + b^2 \cdot \left(\frac{2 \cdot \pi \cdot n}{T}\right)^2}; \\ &\text{Bn} := \end{aligned} \tag{5}$$

$$\frac{1}{\left(k + kD - \frac{4 m \pi^2 n^2}{T^2}\right)^2 + \frac{4 b^2 \pi^2 n^2}{T^2}} \left(kD \text{an Kernel} \sin(\text{phin}) \left(k + kD - \frac{4 m \pi^2 n^2}{T^2}\right) + \frac{2 kD \text{an Kernel} \cos(\text{phin}) b \pi n}{T} \right)$$

$$\begin{aligned} &> \text{simplify}\left(m \cdot \frac{d}{dt} \left(\frac{d}{dt} z(t)\right) + b \cdot \frac{d}{dt} z(t) + (k + kD) \cdot z(t) - kD \cdot \left(\text{alphan} \cdot \cos\left(\frac{2 \cdot \pi \cdot n \cdot t}{T}\right) + \text{betan} \cdot \sin\left(\frac{2 \cdot \pi \cdot n \cdot t}{T}\right)\right)\right); \\ &\quad 0 \end{aligned} \tag{6}$$