define an half-sine pulse

Pulse duration $T_s := \frac{11}{1000}$ Phase $\theta := 0$

Max. shock accel $Amax := 20$

giving Pulse frequency (rad/s) $\omega_f := \frac{1}{T_s} \cdot 2 \cdot \pi = 571.199$

in Hz $f_f := \frac{\omega_f}{2 \cdot \pi}$

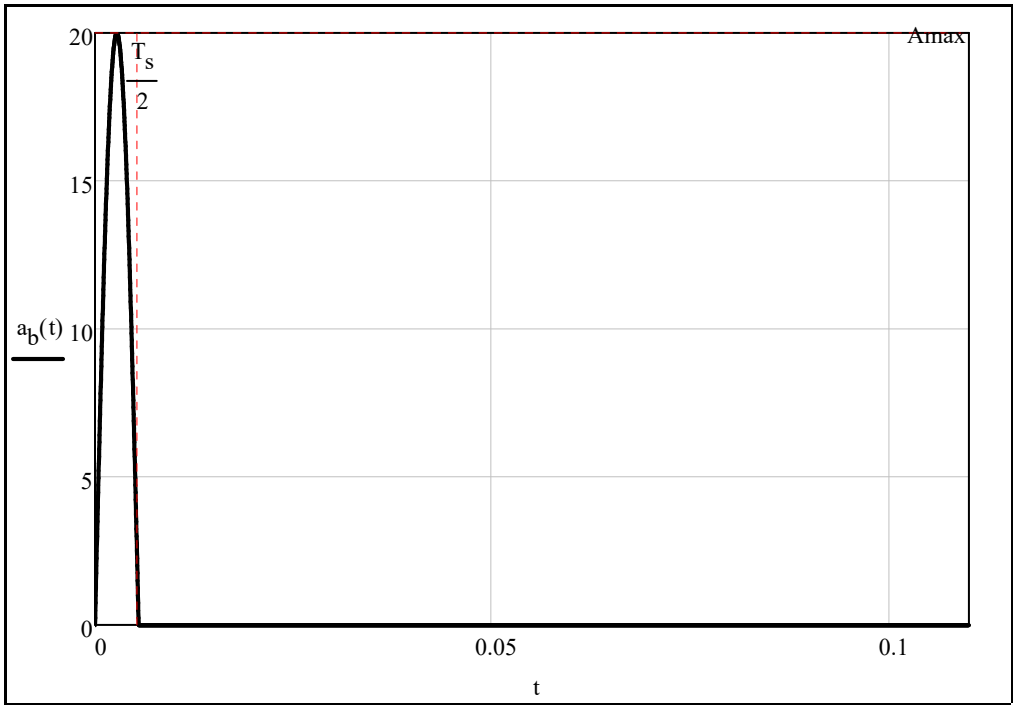
Total analysis time is $tend := 10 \cdot T_s$ $tend = 0.11$

Number of time step $nsteps := 5000$

Analysis time step $\Delta t := \frac{tend}{nsteps}$

Time range $t := 0, \Delta t .. tend$

$$a_b(t) := Amax \cdot \sin(\omega_f \cdot t + \theta) \cdot \left(t \le \frac{T_s}{2} \right)$$



as a check set up the following integral

$i := 0, 1 .. 2000$ $\quad fn_i := i$ $\quad \zeta := 0.0$ $\quad \omega_i := 2 \cdot \pi \cdot fn_i$

$$SRS_n = \left| \frac{\omega_n}{\sqrt{1-\zeta^2}} \int_0^t \ddot{u}_b(\tau) e^{-\zeta_n \omega_n (t-\tau)} \sin \omega_n \sqrt{1-\zeta^2} (t-\tau) d\tau \right|_{max}$$

$$SRS(f) := \left| w \leftarrow 2 \cdot \pi \cdot f \right.$$
$$\left. \max\left[\left| \frac{w}{\sqrt{1-\zeta^2}} \cdot \int_0^{tend} a_b(\tau) \cdot e^{-\zeta \cdot w \cdot (tend-\tau)} \cdot \sin\left[w \cdot \sqrt{\left(1-\zeta^2\right)} \cdot (tend-\tau) \right] d\tau \right| \right]$$