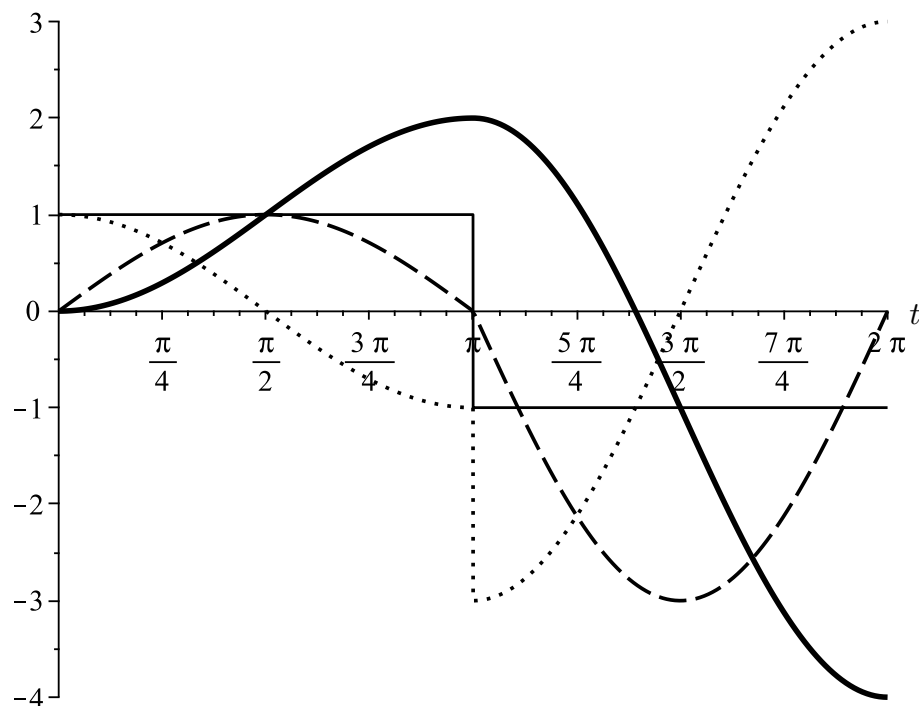


Simple Step Forcing

Consider the problem

$$\ddot{y} + y = 1 - 2u_\pi(t), \quad y(0) = \dot{y}(0) = 0.$$



The forcing (thin solid line above) has a discontinuity at $t = 2\pi$. Note that y (thick solid curve) looks reasonably smooth, and there is no discontinuity at $t = 2\pi$. There is also no discontinuity in \dot{y} (dashed curve) at $t = 2\pi$, but we see that the derivative of \dot{y} (namely \ddot{y} , dotted curve) is discontinuous at $t = 2\pi$.

