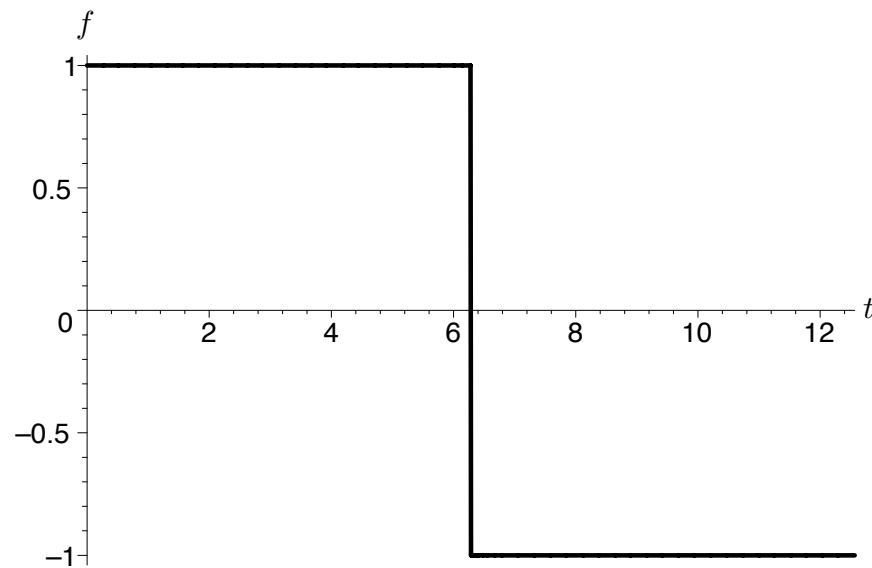


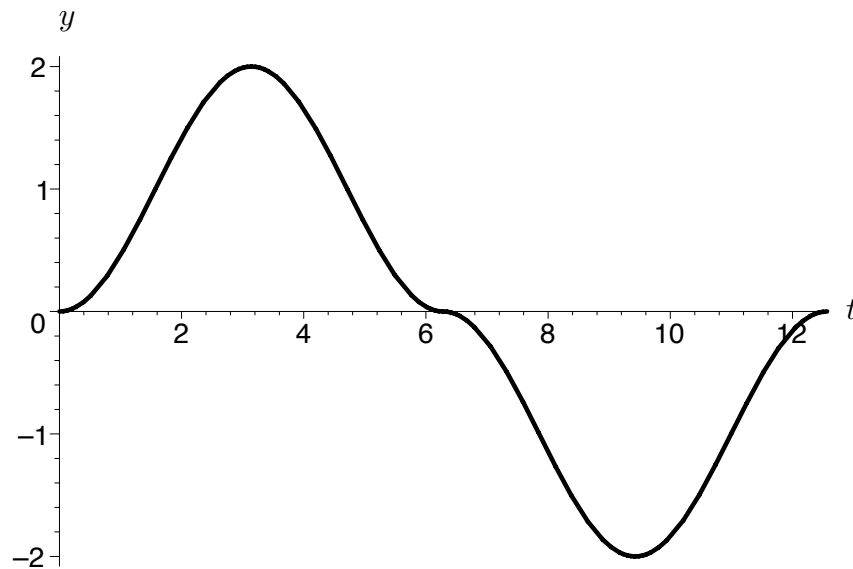
Simple Step Forcing

Graphed below is the forcing function $f(t) = 1 - 2u_{2\pi}(t)$ for $t \in [0, 4\pi]$.

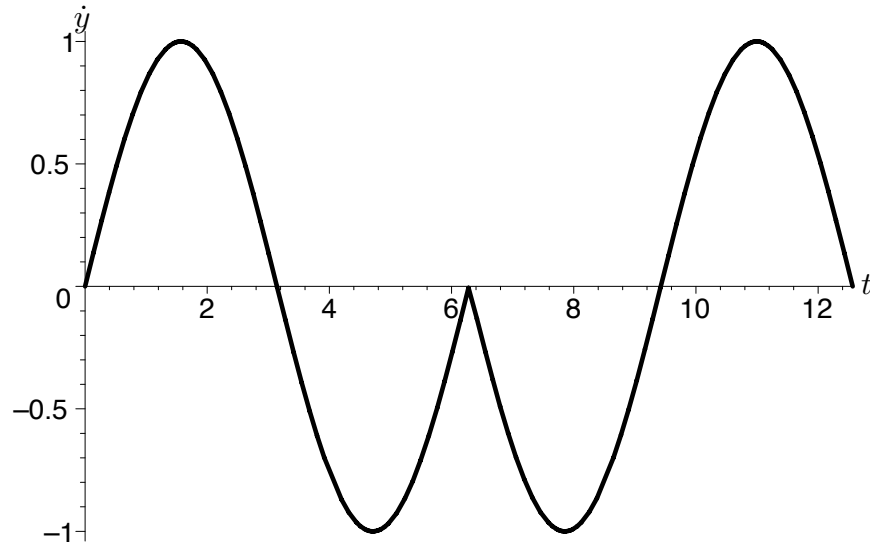


Here is a graph of the solution (for the same interval) of

$$\ddot{y} + y = f(t), \quad y(0) = \dot{y}(0) = 0.$$



Here is a graph of \dot{y} vs. t for the same range. Again, there are no discontinuities, but we see that the derivative of \dot{y} (namely \ddot{y}) is discontinuous.



Here is a graph of \ddot{y} vs. t for the same range. Since y and \dot{y} are continuous, but the forcing is not, \ddot{y} must be discontinuous.

