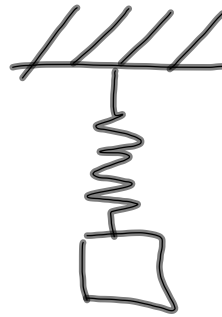


$$y'' + 4y' + 13y = \delta(t-4)$$

$$r^2 + 4r + 13 = 0$$

$$v(0) = 0$$

$$y(0) = 0$$



$$\Rightarrow r = -2 \pm 3i$$

decay due to damping

oscillation with angular frequency 3

$$my'' + \delta y' + ky = \underline{f(t)}$$

forcing function

$$y(t) = -\frac{1}{3} e^{8-2t} \sin(12-3t) u(t-4)$$

$$= -\frac{1}{3} e^{-2(t-4)} \sin(-3(t-4)) u(t-4)$$

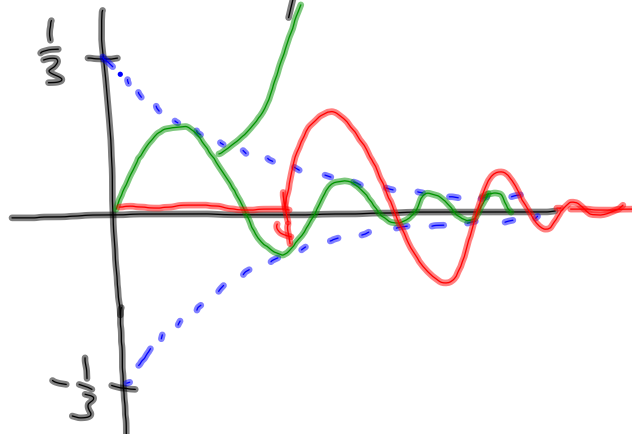
$f(x) \rightarrow f(4)$

$$= \frac{1}{3} e^{-2(t-4)} \sin[3(t-4)] u(t-4)$$

$$y(t) = \begin{cases} 0 & \text{if } t < 4 \\ \square & \text{if } t \geq 4 \end{cases}$$

This stuff "turns on" at time 4

What about $\hat{y} = \frac{1}{3} e^{-2t} \sin(3t)$?



$$\int_0^t e^{\tau} \sin(t-\tau) d\tau$$

Due dates:

Assignment 23: today, 6/3

Assignment 24: Tuesday, 6/4
drop it by my office by 3:00

Assignment 25: Wednesday, 6/5