

ultimate value: $y(t \rightarrow \infty) = 20/11$ &

overshoot = (maximum - ultimate) / (ultimate) = 0.312

$$\max y(t) = (1.0312)(\text{ultimate}) = 2.038$$

at $t = t^*$

$$y(t^*) = 2.038 = \frac{20}{11} - 1.9412 \cdot e^{-2t^*/5} \cdot \sin \left[\frac{\sqrt{116}}{16} t^* + \sin^{-1} \left(\frac{1}{\sqrt{116}} \right) \right]$$

$$(d) \text{ offset} = 2 - \frac{20}{11} = 2.182 = 0.18$$

$$(e) T = \frac{2\pi}{\omega} = \frac{2\pi}{\sqrt{116}/5} = 3.49$$

