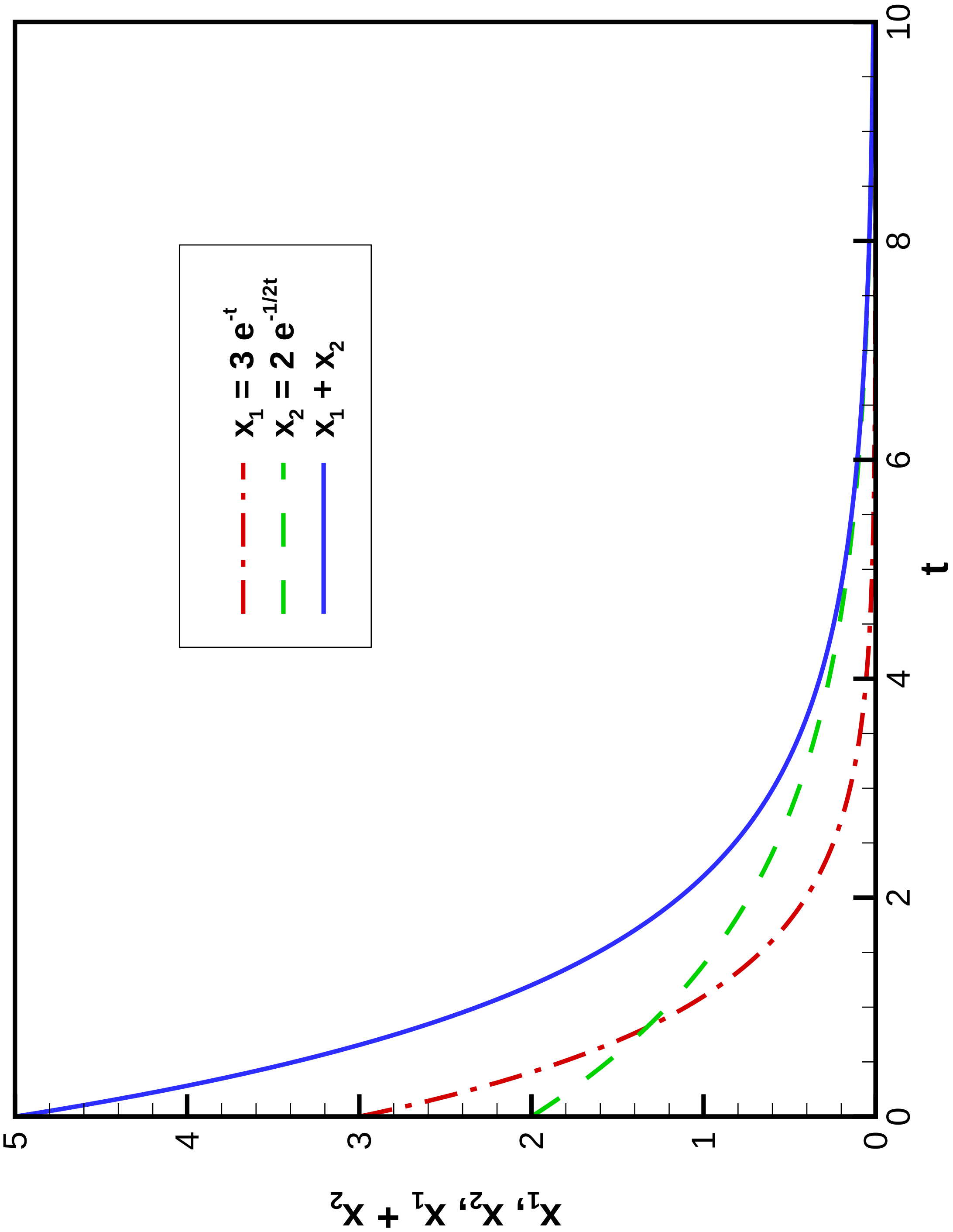


Figure 1: Illustration of a purely damped motion. The mass approaches its equilibrium position $x = 0$ monotonically.

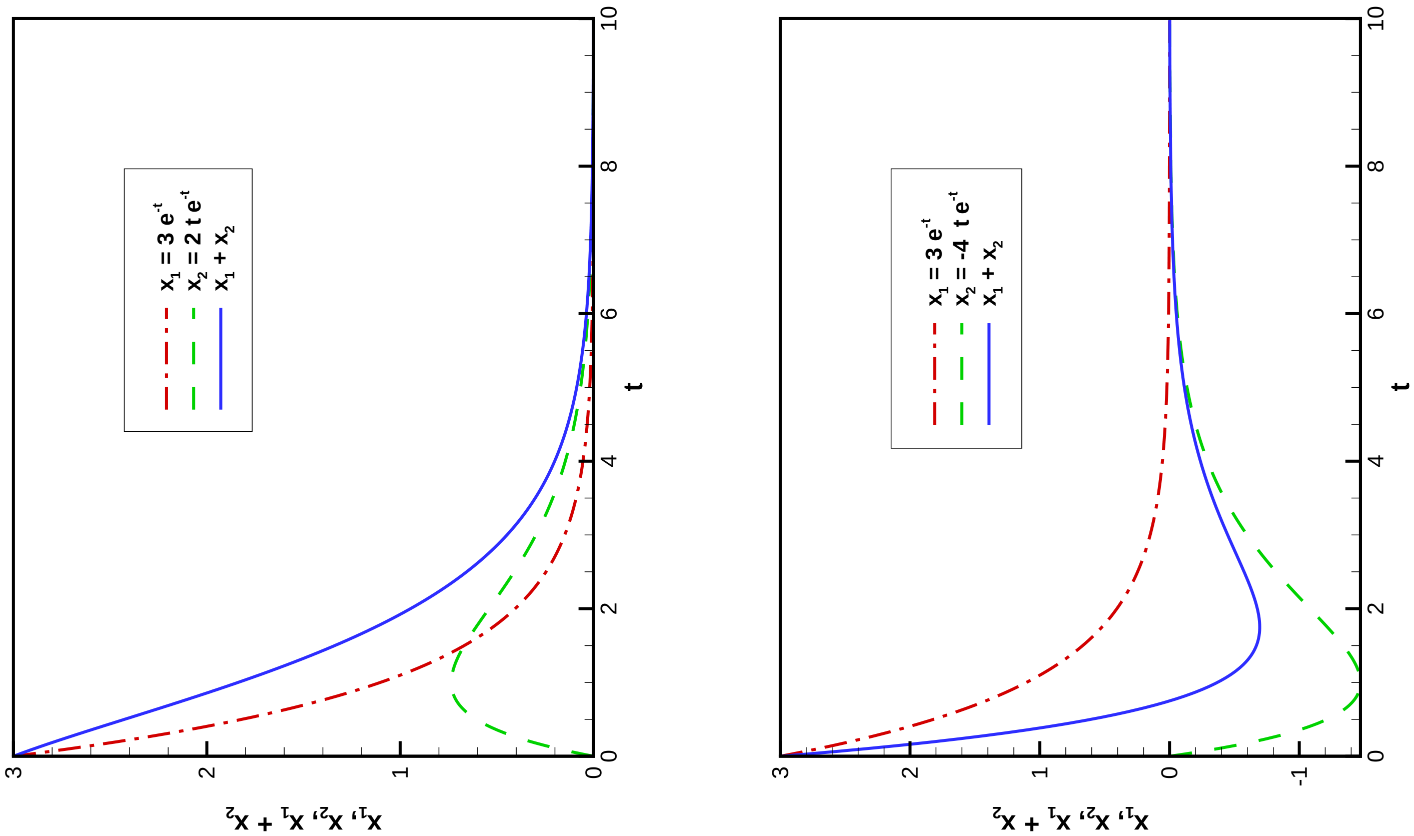


Figure 2: Illustration of critically damped motions. The mass approaches its equilibrium position, $x = 0$, with at most one “overshoot”.

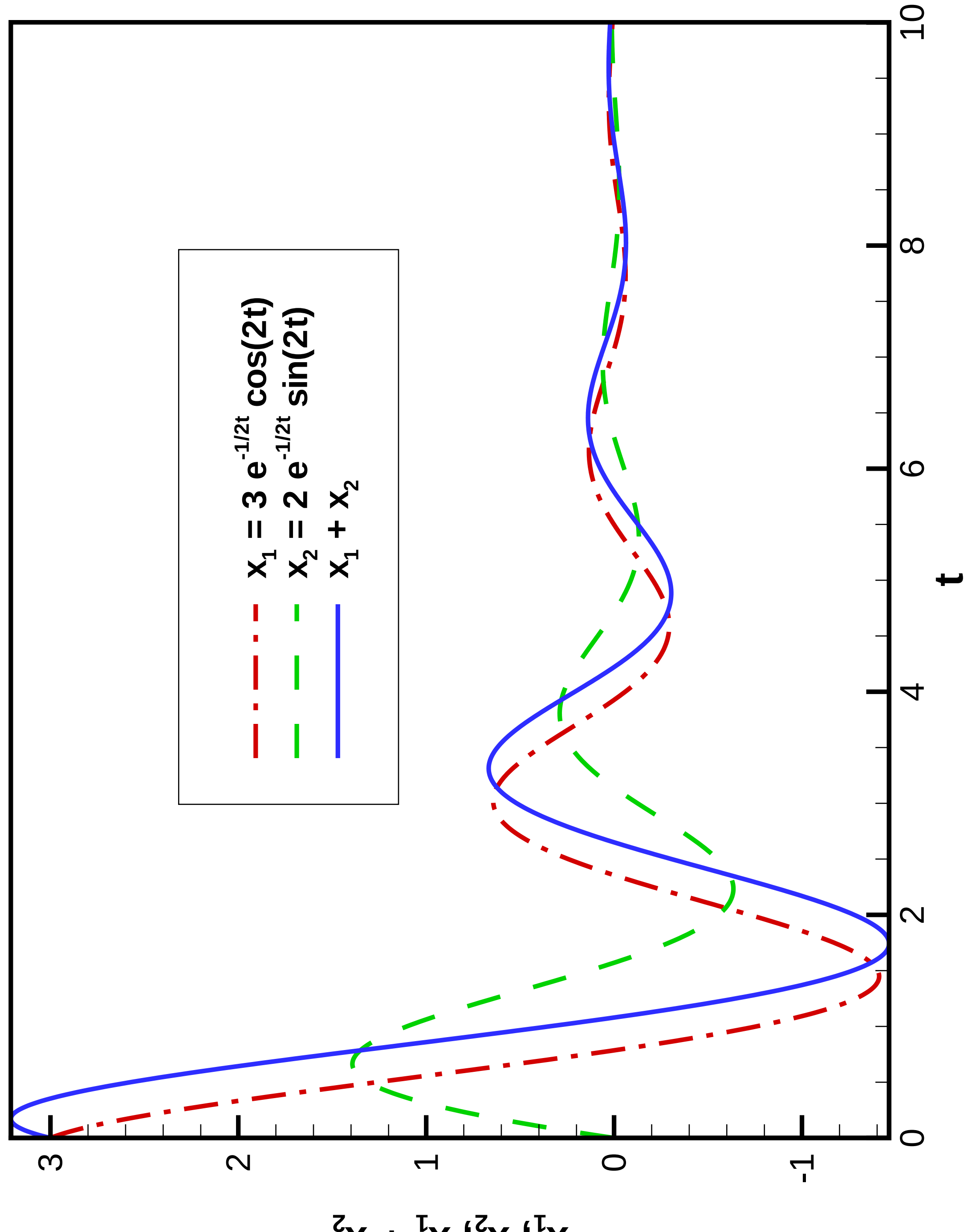


Figure 3: Illustration of a damped oscillation. The mass oscillates about its equilibrium position $x = 0$ and the amplitude of the oscillations decays exponentially.

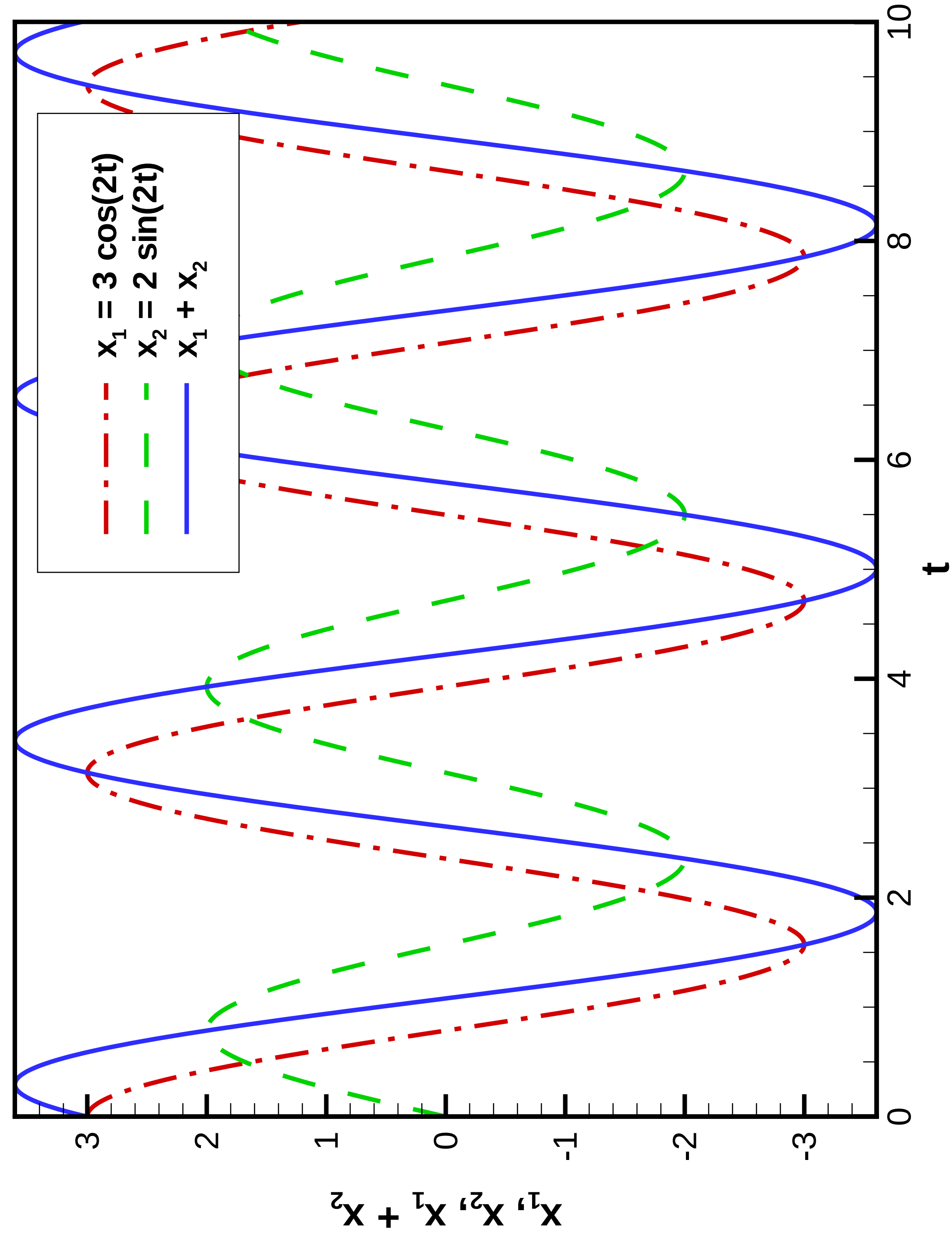
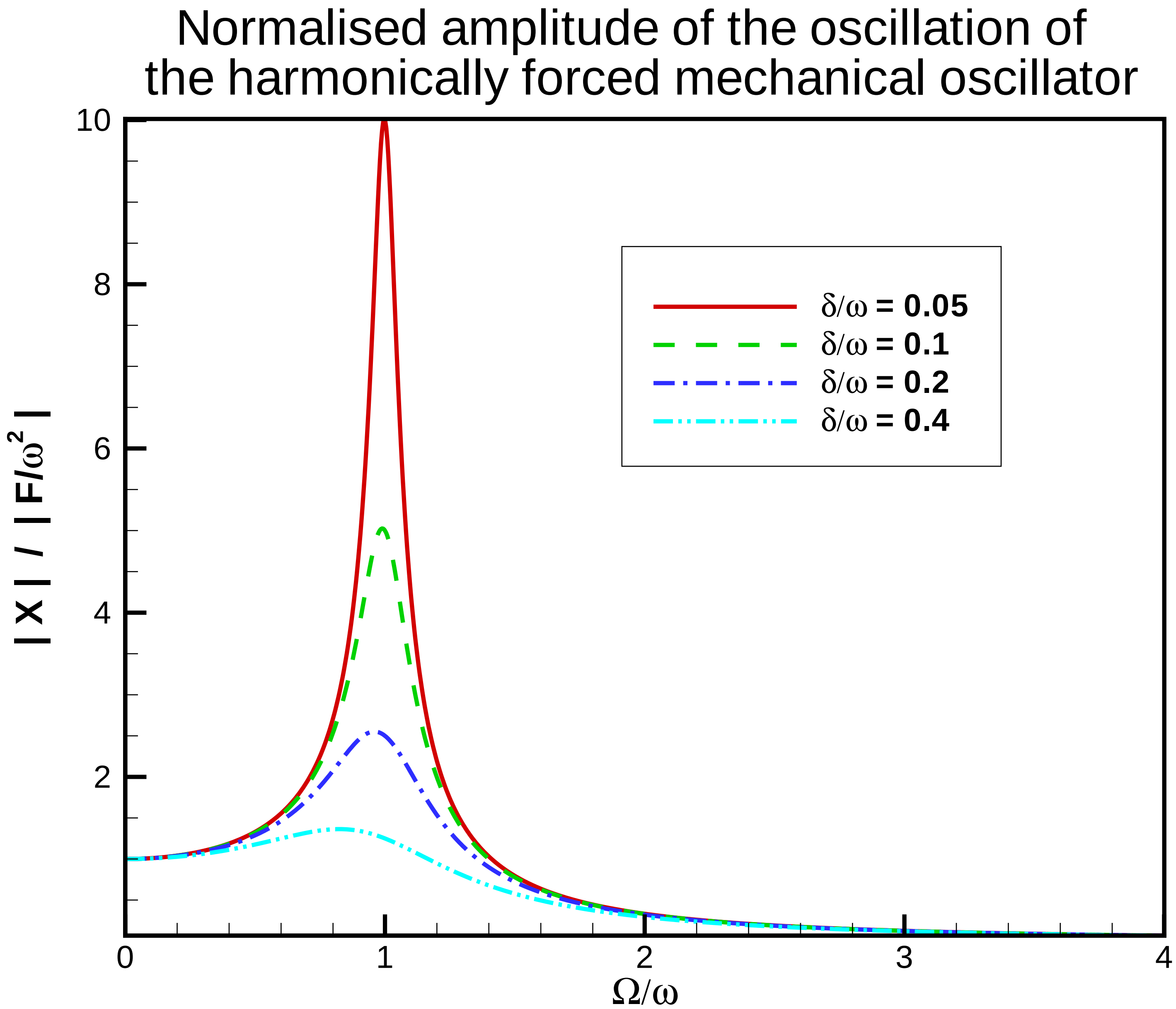


Figure 4: Illustration of an undamped oscillation. The mass performs harmonic oscillations about its equilibrium position $x = 0$.


Normalised amplitude of the oscillation of the harmonically forced mechanical oscillator
| X | / | F/ω² |
Ω/ω
δ/ω = 0.05
δ/ω = 0.1
δ/ω = 0.2
δ/ω = 0.4
0
1
2
3
4
2
4
6
8
10

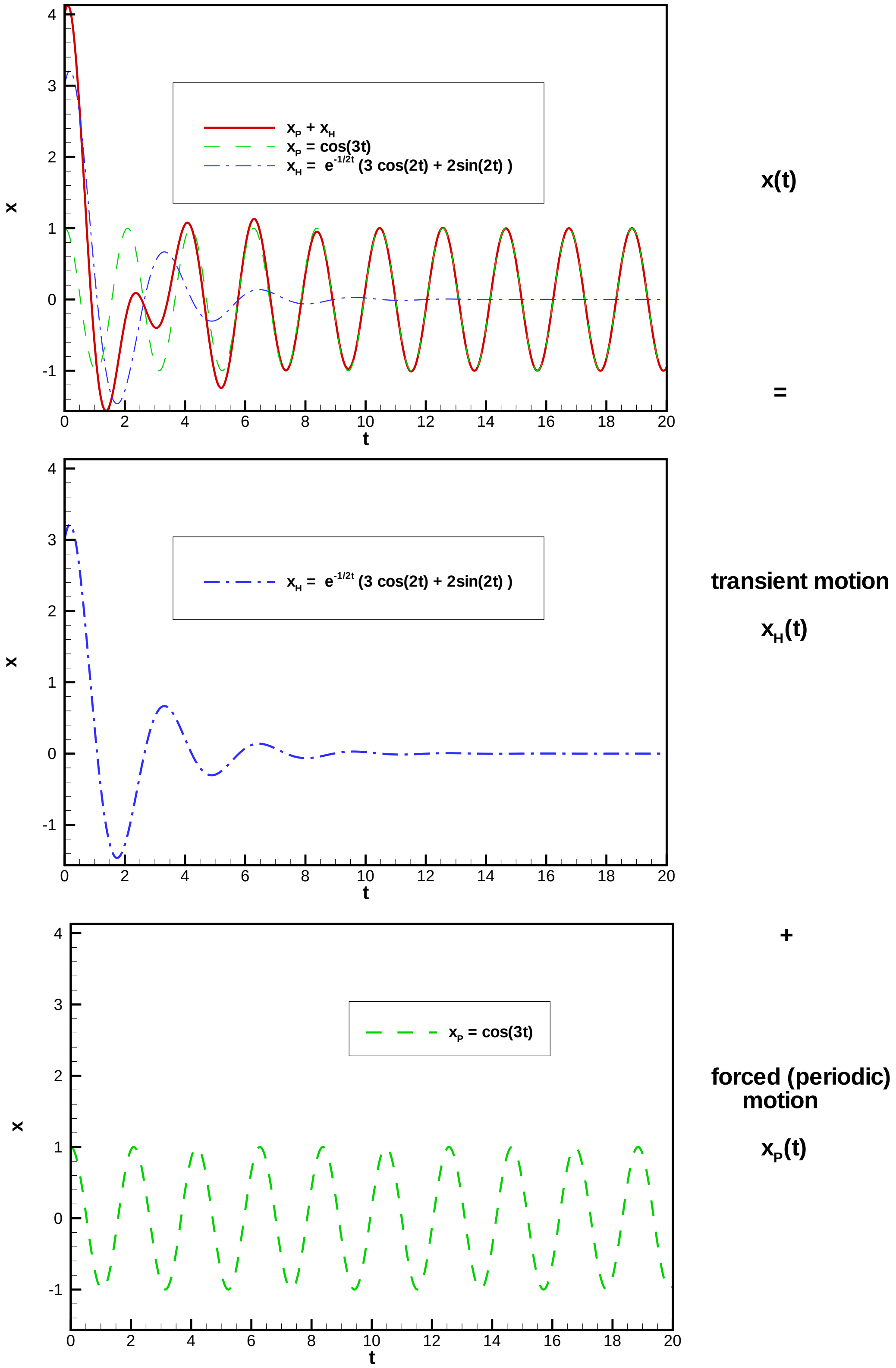


Figure 5: The displacement of a harmonically-forced, damped mechanical oscillator comprises the periodic (forced) solution $x_P(t)$ and the transient solution $x_H(t)$.