

Questions on Free Vibrations:

1. What is an oscillator?
2. What is angular frequency?
3. What is simple harmonic motion?
4. What is harmonic oscillator?
5. What is a fundamental period of the motion?
6. What is the lowest order differential equation which can describe oscillations?
7. What is the general equation for a linear oscillator?
8. What is natural frequency?
9. What are the effects of friction (damping) on an oscillatory motion?
10. What is phase portrait?
11. Describe a stable focus.
12. Describe an unstable focus.
13. Describe a saddle point.
14. In Figure 5.11, what are the equilibria points?
15. In Figure 5.11, what do the closed trajectories represent?
16. In Figure 5.11, what do the open trajectories represent?
17. In Figure 5.11, what do the trajectories through the saddle points represent?
18. What are the effects of nonlinear damping on the oscillatory motion?
19. What is a limit cycle?