

Vibrations, Waves, and Sound

Chapter 11-12 Assignments and Answers

Assignments

Ch. 11 Problem Assignment:

HW due: _____

Work textbook pg. 317-318 Problems #1, 2, 3, 4a, 5, 7, 9abc, 13, 14, 16, 21a-e, 23abd,
26, 28, 29, 30, 36, 37, 38, 52, 53, 54, 55, 56

Ch. 12 Problem Assignment:

HW due: _____

Work textbook pg. 348-349 Problems #1, 2, 25, 26, 27, 29, 35, 39, 41, 42

Answers

Chapter 11:

- | | |
|------------------|---|
| 1. 0.72m | 23.a. 0.49s, 2.04Hz |
| 2. 525N/m | b. 0.231m |
| 3. 1.467Hz | d. $x = (0.231\text{m})\sin(4.08\pi t)$ |
| 4.a. 735N/m | 26. 597m/s |
| 5. 3.8Hz | 28.a. 1.7s |
| 7.a. 0.158N/m | b. 0.60Hz |
| b. 2.83Hz | 29.a. 0.99m |
| 9.a. 2.45m/s | 30. 1.3s |
| b. 1.57m/s | 36. 2.2m/s |
| c. 1.8J | 37. 1.31m |
| 13.a. 0.06m | 38.a. 187.5m to 545.5m |
| b. 0.58m/s | b. 2.78m to 3.41m |
| 14. 9.43m/s | 52. $f_1 = 440\text{Hz}$, $f_2 = 880\text{Hz}$, |
| 16.a. 0.45m | $f_3 = 1320\text{Hz}$, $f_4 = 1760\text{Hz}$ |
| b. 1.02Hz | 53. 441Hz |
| c. 2.49J | 54. $f_1 = 70\text{Hz}$, $f_2 = 140\text{Hz}$, |
| d. 1.11J, 1.39J | $f_3 = 210\text{Hz}$, $f_5 = 350\text{Hz}$ |
| 21.a. 0.38m | 55. 0.097m |
| b. 1.03Hz | 56. 70Hz |
| c. 0.967s | |
| d. 0.915J | |
| e. 0.051J, 0.86J | |

Chapter 12:

1. 343m
2. 1950m
- 25.a. 76.6Hz, 230Hz, 383Hz, 536Hz
b. 153Hz, 306Hz, 459Hz, 612Hz
- 26.a. 476.4Hz
b. 714.6Hz
27. 8.6m, 0.0086m
- 29.a. 0.183m
b. 1.1m
c. 440Hz, 0.78m
- 35.a. 55Hz
b. 198m/s
39. $\pm 0.5\text{Hz}$
41. 28.5kHz
42. 346Hz