

Chapter 17 Even Answers

2. 1.43 km/s
4. 1.99 km
6. 5.67 mm
8. 1.55×10^{-10} m
10. (a) 1.27 Pa (b) 170 Hz (c) 2.00 m (d) 340 m/s
12. $s = (2.25 \times 10^{-8} \text{ m}) \cos(62.8 \text{ x/m} - 2.16 \times 10^4 \text{ t/s})$
14. 0.103 Pa
16. (a) zero (b) 3.87 Pa
18. (a) $1.00 \times 10^{-5} \text{ W/m}^2$ (b) 90.7 mPa
20. (a) $I_2 = \left(\frac{f}{f}\right)^2 I_1$ (b) intensity is unchanged
24. 100 m and 10.0 m
26. 241 W
28. 86.6 m
30. (a) 1.76 kJ (b) 108 dB
32. (a) 6.25 Pa (b) water (c) 71.2 dB (d) 4.59 Pa
34. (a) 3.04 kHz (b) 2.08 kHz (c) 2.62 kHz (d) 2.40 kHz
36. (a) 0.0217 m/s (b) 2 000 028.9 Hz (c) 2 000 057.8 Hz
38. (a) 441 Hz, 439 Hz (b) 54.0 dB
40. (a) 325 m/s (b) 29.5 m/s
42. $2.82 \times 10^8 \text{ m/s}$
44. 46.4°
46. $f \sim 300 \text{ Hz}$, $\lambda \sim 10^0 \text{ m}$, duration $\sim 10^{-1} \text{ s}$
50. 6.01 km
52. (a) $5.04 \times 10^3 \text{ m/s}$ (b) $1.59 \times 10^{-4} \text{ s}$ (c) 1.90 mm (d) 2.38×10^{-3} (e) 476 MPa
54. (b) 85.9 Hz
56. 1.60
58. 2.34 m
60. 80.0°
62. 1.12×10^{-11}
66. 67.0 dB
68. $t = \frac{eE}{4\pi r^2 I_0 (10^{\beta/10})}$
72. $\beta = \left(\frac{10}{\theta_0}\right) \theta + 10 \log\left(\frac{k}{I_0}\right)$

