

Answers to even-numbered problems:

Chapter 1

2. a) 3, b) 4, c) 3, d) 1, e) 2, f) 4, g) 2
4. a) 86 900, b) 9100, c) 0.88, d) 476, e) 0.0000362
6. 6.6%
8. 1.00×10^5 s
10. $(4.5 \pm 0.2) \times 10^9$ cm²
12. a) 0.2866 m b) 0.000085 V c) 0.000760 kg d) 0.000 000 000 060 s
e) 0.000 000 000 000 022 5 m f) 2 500 000 000 volts
14. a) 1.8 m b) 75.2 kg
16. a) 0.111 yd² b) 10.8 ft²
18. a) 3.9×10^{-9} in b) 1.0×10^8 atoms
20. a) 0.621 mi/h b) 3.28 ft/s c) 0.278 m/s
22. a) 9.46×10^{15} m b) 6.31×10^4 AU c) 7.20 AU/h
24. a) 10^3 b) 10^4 c) 10^{-2} d) 10^9
26. 500 h
28. 5×10^4 L
30. 10% - 15%
32. A is distance/time⁴ B is distance/time²
34. 1×10^{-5} %, 8 significant figures
36. 3.16×10^7 s, 3.16×10^{16} ns, 3.17×10^{-8} y
38. 2.69 acres
40. 1×10^{11} gallons/y
42. 9 cm/y
44. 4×10^5 tons, 1×10^8 gallons
46. 1×10^3 days
48. 3×10^3 m
50. 3×10^{-5} %
52. a) 0.10 nm b) 1×10^{-5} fm c) 1×10^{10} angstroms d) 9.5×10^{25} angstroms
54. 1.15 mi

Chapter 2

2. 0.60 h
4. a) 56 km/h b) 16 m/s c) 51 m/s
6. Average velocity = +0.78 m/s, average speed cannot be calculated
8. 3×10^2 m/s
10. a) 9.26 m/s b) 3.1 m/s
12. 30. s
14. 61 km/h
16. 4.3 m/s^2
18. 5 s
22. -3.1 m/s^2
24. 4.41 m/s^2 , 2.61 s
26. 36 m/s
28. a) 113 m b) 70 m
30. should not pass
32. I Can stop, II. should stop
34. 2.4 s
36. 25 m, 4.5 s
42. $|v| = 10.4$ m/s, $t = 2.90$ s and 0.775 s
44. 2.1 m
46. 9.1 m/s
48. 27 m/s, 37 m, 1.4 s, 4.1 s
60. 1.5 poles
62. 1.142×10^5 km/h $\rightarrow 1 \times 10^5$ km/h
64. -20 m/s^2
66. 3.3 m
68. 4.0 s, 24 m
70. 220.0 km/h
72. 1.3 m, 6.1 m/s, 1.2 s
74. 280 m/s^2
76. a) $d = 11.52$ s YES, b) $d = 132.4$ m NO
78. a) 5.63 s, b) 155 m c) 55.2 m/s and 60.6 m/s
80. 236 m/s
82. 2.25