

1. a) 8 m b) 8 m c) +8 m
2. a) 4.5 m b) 4.5 m c) -4.5 m
3. 3a) 12.5 m b) 8.0 m c) +8.0 m
4. a) 8 m b) 4.2 m c) -4.2 m
5. a) 30,000 m/s b) 0 m/s - *Circular Motion – save for much later in the trimester*
6. a) 188,000 m/s b) 0 m/s - *Circular Motion – save for much later in the trimester*
7. 17,000,000 years
8. 10,000,000 years
9. 124.88 km/hr
10. 96,000,000 years
11. a) 40 km/hr b) 34.3 km/hr 25° S of E c) 3.08 km/hr, 2.64 km/hr
12. 0.061 seconds
13. 58,600,00 m
14. a) 6.00 m/s, 1.71 m/s, 4.04 m/s b) 3.49 m/s
15. a) 3.3×10^{17} rps b) 0 m/s - *Circular Motion – save for much later in the trimester*
16. 4.29 m/s^2
17. a) 53.4 m/s^2 -5.55 g b) -201 m/s^2 29.6 g
18. a) 1.43 seconds b) -25 m/s^2
19. 108 m/s^2
20. a) 10.8 m/s
21. 38.8 m/s
22. 502 m/s
23. a) 16.5 s b) 13.5 s c) 2.68 m/s^2
24. b) $t=12.0 \text{ s}$, $a=2.40 \text{ m/s}^2$ c) 172.8 m d) 28.8 m/s
25. a) 10 m b) -1.00 m/s she moved backwards at the end
26. b) $v_i = 0$, $v_f = 30.0 \text{ cm/s}$, $\Delta s = 1.80 \text{ cm}$, $a=250 \text{ cm/s}^2$, $\Delta t = 0.12 \text{ s}$
27. 0.799 m
28. a) 6.87 m/s^2 52.3 m
29. a) 28 m/s 7680 m b) 50.9 s 712 m
30. a) 7.69 ms b) 8450 m/s^2
31. a) 51.4 m b) 17.1 s
32. a) 90.0 m/s^2 9.81 g b) 6.67 ms
33. a) 80 m/s^2 b) 0.0933 s
34. 486 m/s^2
35. a) $v_f=7.68 \text{ m/s}$ b) 1470 m/s^2
36. a) 10.0 s b) 20.5 m/s c) 15.8 s d) 19.6 m/s
37. a) 32.6 m/s^2 b) 323 m/s
38. a) 15 m/s b) 5.26 s c) 49.4 m
39. unclear question – assume constant acceleration to 183.58 mph and then constant velocity until $\Delta s = 5.00 \text{ mi}$ – time is 104 seconds
40. a) $v_v = 12.21 \text{ m/s}$, $a= 4.07 \text{ m/s}^2$ b) $v_f = 11.2 \text{ m/s}$, $a= 3.74 \text{ m/s}^2$
41.

	s	v
a.	6.25	10.1 m/s
b.	10.1 m	5.2 m/s
c.	11.5 m	0.20 m/s
d.	10.4 m	-4.60 m/s

42. s_f for $s_i=70.0$ m Δs down v down
- | | | | |
|----|--------|--------|----------|
| a. | 61.8 m | 8.23 m | 18.9 m/s |
| b. | 51.1 m | 18.9 m | 23.8 m/s |
| c. | 38.0 m | 32.0 m | 28.7 m/s |
| d. | 22.4 m | 47.6 m | 33.6 m/s |
| e. | 4.78 m | 65.6 m | 38.5 m/s |
43. 4.95 m/s
44. a) $\Delta t = 1.8$ s, $v_i = 1.4$ m/s down, $a = 9.80$ m/s down b) 18 m
45. a) $v_i = +13.0$ m/s, $a = -9.80$ m/s² b) $v_f=0$, $\Delta s = 8.61$ m c) 1.32 s
46. a) 1.14 s b) 2.62 m above the water c) -7.16 m/s
47. a) 8.26 m b) 0.72 s
48. 2.28 s
49. 1.91 s
50. a) 7.00 m/s b) 0.714 s
51. a) 94.0 m b) 3.94 s
52. a) 4.9 m b) 38.3 m/s c) 41.49 m
53. a) 70.0 m/s b) 6.09 s
54. a) 14.47 m/s
55. a) 19.6 m b) 18.5 m
56. a) 5.42 m/s b) 5.33 m/s c) 134,000 m/s²
57. a) 305 m b) 29.2 m/s, 262 m c) 8.91 s
58. a) 5.42 m/s b) 4.64 m/s c) 2880 m/s²