

WEP: Prodigious Practice Problems KEY

1. 12 J	21. 2.0 m/s	41. 2.85 m/s	61. 460 J/kg°C
2. 11.8 J	22. (a) 48 J (b) 12 J (c) 12 J (d) - 36 J (e) 12 J (f) Turns to thermal energy	42. 22.4 m/s	62. 296 J
3. 1.8 J	23. (a) 8.0 J (b) 8.0 J (c) 6.0 J	43. -1.63 N/kg or -1.63 m/s ²	63. 1800 J/kg°C
4. omit	24. (a) 1500 J (b) 7500 J (c) 15 000 J	44. 4.76 m/s	64. 14 kJ
5. 1.27×10^3 J	25. 9.8×10^8 J	45. 24.2 m/s	65. 14 J/kg°C (it's actually 140 J/kg°C, but the question was missing a zero. Should be 4550 J of heat)
6. 2.00 N	26. (a) 235 J (b) 58.8 J (c) 88.2 J (d) 0.00 J (e) -49.0 J	46. 8.85 m/s	66. 57 J/kg°C (really should be 235 J/kg°C, if you change the ΔT to 3.64 °C)
7. If work done by push: (a) & (b) 2.25×10^5 J If net work done: (a) 7.5×10^4 J (b) 0.0 J	27. (a) 0.20 m (b) 20.4 m (c) 367 m	47. (a) 196 J, 0 J (b) 157 J, 39.2 J (c) 98.0 J, 98.0 J (d) 0 J, 196 J	67. 0.042 kg = 42 g
8. 0.0 J	28. 147 J	48. 70.7 m/s	68. 567 000 °C Wow! Hot! (as shown, but the mass was supposed to be 0.300 kg, so the answer should be 567 °C)
9. 5.76×10^4 J	29. 1960 J	49. 0.363 m	69. 302 J/kg°C
10. Assume lifting: 130 J	30. 75 J	50. 60 W	70. 46 °C (if C for gold is 129 J/kg°C)
11. 120 J	31. 10.2 m	51. 588 W	71. 75%
12. 0.0 J	32. 3.26 J	52. 15 W	72. 27.0 m/s
13. 5.0 m	33. 3.1×10^2 J	53. 100 W	73. 16.9 m/s

14. (a) 40.8 N/kg (b) must use $F_{ave} = (490/2)$ to get: 2.94×10^3 J	34. 45 J	54. 300 J	74. (a) 7.0 m (b) 1400 J (or 1440 J) (c) 1100 J (or 1150 J) (d) -290 J (or - 292 J) (e) -41.7 N
15. (a) 9.0 J (b) 36 J (c) 81 J	35. 196 J	55. 1.32×10^6 J = 1.32 MJ	75. The larch
16. (a) 2.0 m/s (b) 20 m/s (c) 85 m/s	36. 5.10 m	56. (a) 310 J (b) 13 J (c) 5.0 N	
17. (a) 750 J (b) 3000 J (c) 2250 J (d) Nope, less (750 J rather than 2250 J)	37. 4.0 m/s	57. 86.4 kWh	
18. 200 J	38. 32.7 m/s	58. 500 W	
19. 64 J	39. (a) 147 J (b) 563 J (c) 710 J (d) 710 J (e) 711 J (14.5 m may have been rounded from 14.479 m, which would give 710 J of E_p) (f) 1 J (due to round off, 0 J really) (g) 710 J	59. 300 s	
20. 4.0 kg	40. 32.3 J	60. (a) 2.00 h (b) 40.0 km	