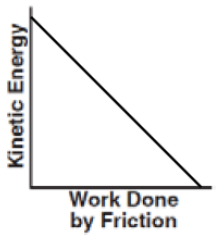
WEP-Work and Power

1. 4) kinetic energy
2. 4) power
3. 3) 12 N
4. 4) 9.0×10^3 W
5. 3) 40 m
6. 1) 100 J
7. 4) J/s
8. 2) greater
9. 2) 280 W
10. 3) 48 W
11. 3) watts
12. 2) distance the box is moved
13. 3) 4,900 W
14. 1) 1 J
15. 2) 30 N
16. 3) 1200 W
17. 1) $kg{\cdot}m^2/s^2$
18. 3) 73 J
19. 1
20. 1) the same
21. 1) impulse
22. 2) power
23. 2) 9.65×10^3 W
24. 3) 570 J
25. 1) 5.0×10^4 W
26. 1) N·m
27. 4) 49 W
28. 7.7 m
29. 128 W
30. 3) 3.6×10^2 J
31. 1) the same work but develops more power
32. power
33. 1) 2.4×10^3 J
34. 3) 27 J
35. 2) 1.5 J
36. 2) 5.0 m
37. 2) 1.5 W
38. 4) 6.0×10^4 J
39. 3) 0.3 J
40. 2) energy
41. 2) impulse
42. 4) four times as great
43. 3) 4.16 m
44. 3) 4.9×10^3 W
45. 1) the same
46. 2)
47. 98 W
48. 3) $kg{\cdot}m^2/s^2$
49. 3) 1.5×10^5 J
50. 2) 9.8 s
51. 1.95×10^4 W

WEP-Energy

1. 2) 200 J
2. 1) quadrupled
3. 2) internal energy, only
4. 2) increases
5. 3) 3.3 J
6. 2) 5.1 m
7. 4) 1920 J
8. 4) joules
9. 5 m/s
10. 750 J
11. 750 J
12. 4
13. 3
14. 1 m/s
15. 3000 J
16. $KE_{after} < KE_{before}$
17. 4) internal energy
18. 11,760 N
19. 7880 N
20. 126,000 J
21. 14.5 m/s
22. 2) 8.00 m/s
23. 1) a decrease in kinetic energy and an increase in internal energy
24. 4) kinetic energy
25. 2) 2.21×10^3 J
26. 3) same
27. 3) position
28. 3) 120 J
29. 3) Internal energy increases.
30. 4
31. 2) 330 J less
32. kinetic energy decreases and internal energy increases
33. 4
34. 63,700 J
35. 19.8 m/s
36. total mechanical energy remains the same
37. 1
38. 3) 30 J
39. 3) remains the same
40. 110 m
41. 46.5 m/s
42. 8.77 m/s^2
43. 4) B and C
44. 3) 72.0 J
45. 4) 9.0×10^3 J
46. 4) $kg{\cdot}m^2/s^2$
47. 4
48. 88.2 J
49. 58.8 J
50. G
51. 1
52. 55 J
53. 2.5 kg
54. weight
55. draw a line starting at 0,0 with a steeper slope

55. draw a line starting at 0,0 with a steeper slope
56. 4
57. 3) Both elastic potential energy and kinetic energy at t_i are converted to internal energy at t_f.
58. 1
59. 2
60. 1.5 m/s
61. 84.4 J
62. 3) 120 J
63. 4) quadrupled
64. 2) 279 J
65. 2) increases and its kinetic energy remains the same
66. Conservation of energy states that unless work is done on the pendulum, its energy can't increase. The pendulum loses some energy due to air resistance (friction) and friction at the pivot, therefore it cannot return to the previous height on the return swing.
67. 3500 J
68. 10.4 m/s
69. 1) work and kinetic energy
70. 4) $KE=p^2/2m$
71. 1) Lubrication decreases friction and minimizes the increase of internal energy.
72. 

73. 2) 41 m
74. 1.39×10^{-16} J
75. 4) PE=540 J and KE=1080 J
76. 3) 450 J
77. 3) It remains the same.
78. 4) a boy jumping down from a tree limb
79. 2) 9 J
80. 3) Kinetic energy remains the same and total mechanical energy increases.
81. 3) 5.4×10^3 J
82. 2) mechanical energy to electrical energy
83. 2) 270 J
84. 3) 2.5 m
85. 3) the same
86. 3) 20 m/s
87. 4) 2.0×10^5 J
88. 1) $\sqrt{(2gh)}$
89. 736 J
90. 4) internal energy
91. 3) 110 J
92. plot points
93. draw the curve
94. 70 kg
95. $KE_{\text{soccer player}} < KE_{\text{runner}}$
96. 3)
97. 182 J
98. 120 J
99. KE of the crate is constant.
100. Internal energy of the crate increases.
101. 3) light -> electrical -> mechanical
102. 4) remains the same
103. 3) electromagnetic energy and internal energy
104. 4)
105. 4) 7.50 J
106. 3) The kinetic energy decreases and the gravitational potential energy remains the same.
107. 1) 0.02 J
108. 5.00 N/m
109. Energy is converted into sound/thermal energy, friction, etc. (any of a variety of acceptable answers).
110. 1) speed and work

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111. 1) electrical --> mechanical
112. 4) internal (thermal) energy
113. 3) 0.0625 J

WEP-Springs

1. plot points
2. draw line
3. slope=k=4 N/m
4. 1) 1 J
5. 2) 0.5 J
6. 2) 7.5 J
7. k, the spring constant
8. $PE_A < PE_B$
9. 2) 20 N
10. B has the most kinetic energy because all the spring potential energy has been converted into kinetic energy.
11. A has the maximum gravitational potential energy because A is located at the highest height.
12. C because all the kinetic energy and gravitational potential energy has been converted into spring potential energy.
13. 1) 3.6 J
14. 4) 400 N/m
15. 2) larger
16. 3) 120 N/m
17. plot points
18. draw line
19. 0.30 m
20. 0.1875 J
21. 0.96 m
22. 40 N/m
23. 2) 67 N/m
24. 1) 0.18 J
25. 2) 4.0×10^3 N/m
26. 1) 3.75 J
27. plot points
28. draw curve
29. 0.363 J
30. 5.6 N
31. mark scale, plot points, draw line
32. k=slope=55 N/m
33. 1) 0.47 J
34. 1) speed
35. 1) 32 N/m
36. $k=mv^2/x^2$
37. 1) A
38. 0.131 m
39. 1.28 J
40. 2
41. 2) 2.0 m
42. 4) 520 N/m
43. 2) 2.0 N/cm
44. 40 N/m
45. 20 N/m
46. 0.9 J
47. 4) 74.9 N/m
48. 2) 15 N