

01. Selected Answers For Conservation

Selected Answers for ModelSpiral Physics: Mechanics

Kinematics

- 41. $r_2 = 1.4 \text{ m}$
- 42. $t_2 = 1.45 \text{ s}$
- 43. $t_3 = 3.4 \text{ s}$
- 44. $t_3 = 4.55 \text{ s}$
- 45. $r_3 = 36.6 \text{ m}$
- 46. $r_4 = 2.0 \text{ km}$
- 47. $t_4 = 370 \text{ ks}$
- 49. $t_2 = 14.9 \text{ s}$
- 50. $t_2 = 7.8 \text{ s}$
- 51. $t_3 = 2.87 \text{ s}$

Dynamics

- 80. $F_{\text{rope}} = 420 \text{ N}$
- 81. $F_{\text{cushion}} = 1.91 \text{ kN}$
- 83. $F_{\text{bottom cable}} = 11.4 \text{ N}$
- 84. $F_{\text{cushion}} = 2.83 \text{ kN}$
- 85. $F_{\text{ground}} = 43.7 \text{ kN}$
- 86. $r_3 = 63.5 \text{ m}$
- 87. $r_3 = 1.55 \text{ km}$
- 89. $m_{\text{block}} = 240 \text{ kg}$
- 90. $m_{\text{block}} = 26 \text{ kg}$
- 91. $F_{\text{rope}} = 500 \text{ N}$
- 92. $F_{\text{rope}} = 490 \text{ N}$

Conservation Laws

- 122. a. $F_{\text{scale}} = 755 \text{ N}$ b. $F_{\text{scale}} = 780 \text{ N}$
- 123. a. $v = 116 \text{ m/s}$ b. $t = 26.8 \text{ s}$
- 124. a. $v = 12.5 \text{ m/s}$ b. $F_{\text{ground}} = 43.7 \text{ kN}$
- 125. $t_2 = 0.89 \text{ s}$ $r_2 = 1.78 \text{ m}$
- 127. $m_{\text{student}} = 94 \text{ kg}$
- 128. $v_2 = 6.0 \text{ m/s}$
- 129. $v_2 = 1.5 \text{ m/s}$
- 130. $v_{2 \text{ ship}} = 24.3 \text{ m/s}$
- 131. $v_{\text{probe}} = 667 \text{ m/s}$
- 132. $v_{2 \text{ platform}} = 0.28 \text{ m/s}$
- 133. $v_{2 \text{ platform}} = 0.06 \text{ m/s}$
- 134. $v_{2 \text{ balloon}} = 6.3 \text{ m/s}$

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