

Physics 1A– 10 AM class
Quiz # 2 Nov. 2, 2007
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MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

- 1) A girl shoots an arrow from the top of a cliff. The arrow is initially at a point 20 meters above the level field below. The arrow is shot at an angle of 30° above horizontal with a speed of 39.2 m/s. How far out from the base of the cliff will the arrow land?
A) 227 m B) 164 m C) 210 m D) 185 m E) 286 m
- 2) A stone is thrown at an angle of 30° above the horizontal from the top edge of a cliff with an initial speed of 12 m/s. A stop watch measures the stone's trajectory time from top of cliff to bottom to be 5.6 s. What is the height of the cliff? ($g = 9.8 \text{ m/s}^2$ and air resistance is negligible)
A) 197 m B) 58 m C) 120 m D) 82 m E) 154 m
- 3) A boat moves at 10.0 m/s relative to the water. If the boat is in a river where the current is 2.00 m/s, how long does it take the boat to make a complete round trip of 1000 m upstream followed by a 1000-m trip downstream?
A) 200 s B) 203 s C) 208 s D) 213 s E) 250 s
- 4) A 500-N tightrope walker stands at the center of the rope such that each half of the rope makes an angle of 10° with the horizontal. What is the tension in the rope?
A) 1440 N B) 1000 N C) 500 N D) 2100 N E) 2900 N
- 5) Two blocks of masses 20 kg and 8 kg are connected together by a light string and rest on a frictionless level surface. Attached to the 8-kg mass is another light string, which a person uses to pull both blocks horizontally. If the two-block system accelerates at 0.5 m/s^2 what is the tension in the connecting string between the blocks?
A) 4 N B) 10 N C) 14 N D) 18 N E) 6 N
- 6) A fireman, 50.0 m away from a burning building, directs a stream of water from a fire hose at an angle of 30.0° above the horizontal. If the velocity of the stream is 40.0 m/s, at what height will the stream of water strike the building?
A) 9.6 m B) 13.4 m C) 18.7 m D) 22.4 m E) 26.3 m
- 7) A ball is rolled horizontally off a table with an initial speed of 0.24 m/s. A stop watch measures the ball's trajectory time from table to the floor to be 0.30 s. How far away from the table does the ball land? ($g = 9.8 \text{ m/s}^2$ and air resistance is negligible)
A) 0.055 m B) 0.072 m C) 0.108 m D) 0.240 m E) 0.360 m
- 8) A sled weighs 100 N. It is held in place on a frictionless 20° slope by a rope attached to a stake at the top; the rope is parallel to the slope. What is the normal force of the slope acting on the sled?
A) 37 N B) 94 N C) 26 N D) 47 N E) 34 N
- 9) Rita accelerates a 0.4-kg ball from rest to 9 m/s during the 0.15 s in which her foot is in contact with the ball. What average force does she apply to the ball during the kick?
A) 48 N B) 72 N C) 36 N D) 24 N E) 60 N

Answer Key

Testname: QUIZ2AC.TST

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

- 1) B
- 2) C
- 3) C
- 4) A
- 5) B
- 6) C
- 7) B
- 8) B
- 9) D