

Physics 1A– 9 AM class

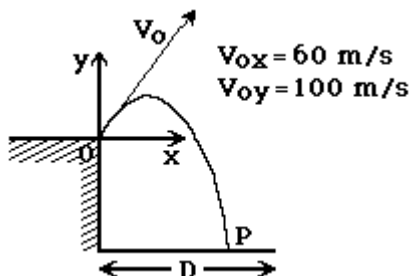
Quiz # 2 Nov. 2, 2007

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

Figure 1

A projectile is fired at time $t = 0.0\text{s}$, from point O at the edge of a cliff, with initial velocity components of $v_{0x} = 60\text{ m/s}$ and $v_{0y} = 100\text{ m/s}$. The projectile rises, then falls into the sea at point P. The time of flight of the projectile is 22.0s.



- 1) In Figure 1, the horizontal distance D (horizontal displacement) is closest to:

A) 1980 m	B) 1320 m	C) 1540 m	D) 1760 m	E) 2200 m
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- 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) 58 m	B) 82 m	C) 154 m	D) 120 m	E) 197 m
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- 3) 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. Find the tension in the rope.

A) 94 N	B) 47 N	C) 37 N	D) 34 N	E) 26 N
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- 4) A jet airliner moving at 500 mph due east moves into a region where the wind is blowing at 120 mph in a direction 30° north of east. What is the new velocity and direction of the aircraft?

A) 607 mph, 5.67° N of E	B) 620 mph, 5.67° N of E	C) 607 mph, 6.22° N of E	D) 588 mph, 4.87° N of E	E) 588 mph, 6.22° N of E
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- 5) A baseball leaves the bat with a speed of 44.0 m/s and an angle of 30° above the horizontal. A 5.0-m-high fence is located at a horizontal distance of 132 m from the point where the ball is struck. Assuming the ball leaves the bat 1.0 m above ground level, by how much does the ball clear the fence?

A) 4.4 m	B) 8.8 m	C) 13.4 m	D) 15.2 m	E) 17.9 m
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- 6) A 5 000-N weight is suspended in equilibrium by two cables. Cable 1 applies a horizontal force to the right of the object and has a tension, T1. Cable 2 applies a force upward and to the left at an angle of 37° to the negative x axis and has a tension, T2. Find T2.

A) 4,000 N	B) 6,640 N	C) 8,310 N	D) 3,340 N	E) 7,210 N
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- 7) A 2 000-kg sailboat experiences an eastward force of 3 000 N by the ocean tide and a wind force against its sails with magnitude of 6 000 N directed toward the Northwest (45° N of W). What is the magnitude of the resultant acceleration?
- A) 1.8 m/s^2 B) 2.2 m/s^2 C) 3.0 m/s^2 D) 2.0 m/s^2 E) 1.5 m/s^2
- 8) A 15-kg block rests on a level frictionless surface and is attached by a light string to a 5.0-kg hanging mass where the string passes over a massless frictionless pulley. If $g = 9.8 \text{ m/s}^2$, what is the tension in the connecting string?
- A) 65 N B) 54 N C) 17 N D) 49 N E) 37 N
- 9) A helicopter is traveling at 40 m/s at a constant altitude of 100 m over a level field. If a wheel falls off the helicopter, with what speed will it hit the ground? ($g = 9.8 \text{ m/s}^2$ and air resistance negligible)
- A) 40 m/s B) 50 m/s C) 60 m/s D) 70 m/s E) 80 m/s

Answer Key

Testname: QUIZ2AB.TST

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

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