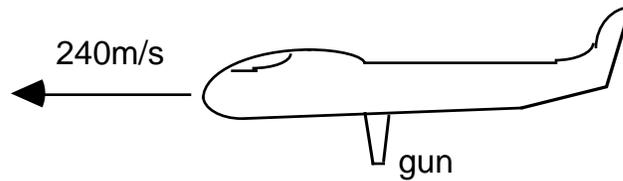


Phys12 Kinematics : Quiz - 10

1) A ball is thrown upward with a speed of 29 m/s at an angle of 54° to the horizontal. What is the horizontal component of its velocity 0.50 s later ? (Assume air friction is insignificant)

- a) 12 m/s b) 17 m/s c) 20. m/s d) 23 m/s



2) A gun is pointing vertically downward from an airplane (shown above) moving with a constant horizontal velocity of 240 m/s. If the gun fires a bullet with an initial speed of 280 m/s relative to the gun, which of the following describes the initial direction of the bullet relative to the ground ?

- a) Vertically downward
b) Horizontal in the direction of the airplane
c) 41° below the horizontal
d) 49° below the horizontal

3) If a car travels due west for 5.0 km and then travels directly north for 6.0 km, how far is the car from its starting position ?

- a) 1.0 km b) 3.3 km c) 7.8 km d) 11 km

4) An object is fired at a speed of 26 m/s at an angle of 63° above the horizontal. What is the speed of the object when it is 6.2 m above the point from which it was fired ?

- a) 4.0 m/s b) 9.8 m/s c) 20. m/s d) 24 m/s

5) A ball rolls along a horizontal table 1.4 m high and falls off the edge. How long does it take to fall to the floor.

- a) 0.14 s b) 0.38 s c) 0.53 s d) 0.73 s

6) The velocity of a projectile is [5,-2] (5 in +x direction, -2 in the -y or vertical direction. Units are m/s). At a later time, which of the following could represent the velocity vector of the projectile ?

- a) [3,-4] b) [4,-5] c) [5,-7] d) [7,-10.]

7) A projectile is launched with a velocity of 13.2 m/s at an angle of 37° above the horizontal. What is the speed of the projectile at its highest point ?

- a) 0.00 m/s b) 7.94 m/s c) 10.5 m/s d) 13.2 m/s

8) A cannon fires a shell at a fixed angle above the horizontal. Which of the following quantities is the same throughout the shell's flight? (ignore air friction)

- a) acceleration b) speed c) velocity
d) vertical component of its velocity

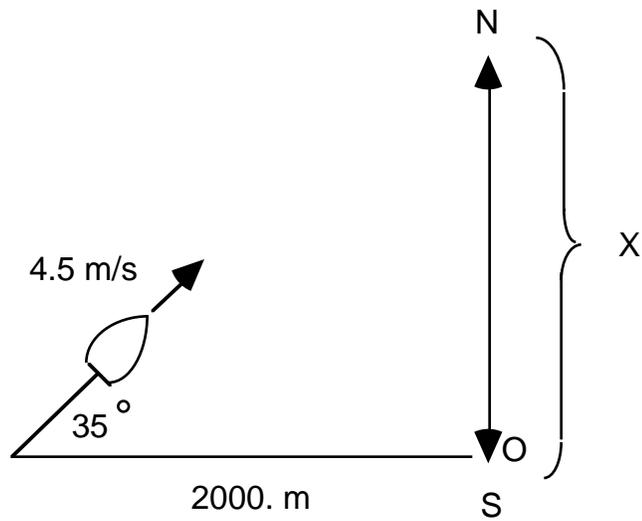
9) A projectile is launched with a speed of 15.8 m/s at an angle of 49° above the horizontal.

a) What is the magnitude of the vertical component of the projectile's velocity 0.40 s after the launch ?

b) What is the speed of the projectile 0.40 s after the launch ?

c) Find the maximum height.

d) Find the range. (horizontal distance traveled)



10)i) At what time will the boat (shown above) hit the meridian ?

- a) 440 s b) 540 s c) 630 s d) 770 s

ii) Find the distance X (from O) where the boat hits the meridian.

Answers : 1) b, 2) d, 3) c, 4) d, 5) c, 6) c, 7) c, 8) a, 9)a) 8.0 m/s, b)13m/s, c) 7.3m, d) 25m, 10)i) b, ii) 1400m.