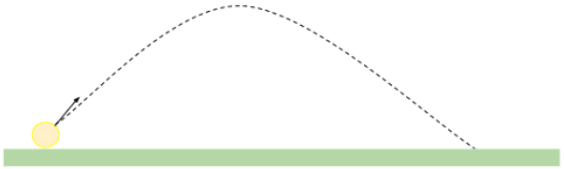
Review: Projectile Motion

Multiple Choice

1)A cannon fires a tennis ball at an angle of 45 degrees. The same cannon fires another cannon at the same speed but this time at 30 degrees. How will the range (horizontal displacement) compare to the first shot?

A) Increases
B) Decreases
C) Remains the Same
D) Can't Be Determined



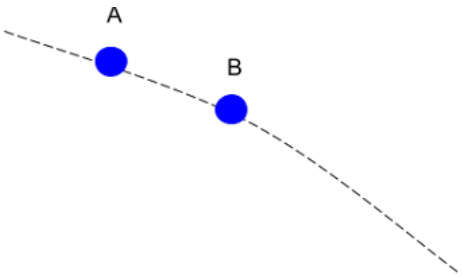
2)Two projectiles are launched horizontally from the top of a cliff. Projectile A is launched at a speed of 20 m/s and strikes the ground 3 seconds later. Projectile B is launched at 30 m/s. The time it takes projectile B to reach the level surface is?

A) 2 seconds
B) 3 seconds
C) 10 seconds
D) 4.5 seconds



3)A projectile moves in a parabolic motion as seen in the diagram. What happens to the object's acceleration as it travels from A to B?

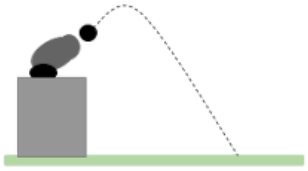
A) It remains the same
B) It increases
C) It decreases
D) Can't be Determined



4)A player kicks a football at an angle of 30.0^0 above the horizontal. The football has an initial velocity of 20 m/s. What is the velocity of the ball at the max height?

a.0.0 m/s b. 10.0 m/s c. 17.3 m/s d. 20.0 m/s

5) A cannonball is fired at some angle into the air. If the first second, it moves 5.0 m horizontally. Assuming it doesn't hit the ground and air resistance is negligible, how far does the cannonball move in the next second?



a.5.0 m b. More than 5.0 m c. Less than 5.0 m d. Not enough information

6) A ball is thrown into the air at some angle. At the very top of the ball's path, its velocity is

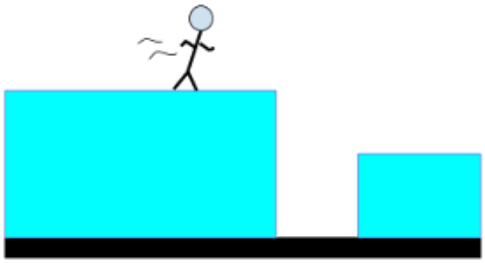
a. entirely vertical b. entirely horizontal c. both vertical and horizontal d. zero

Open Ended

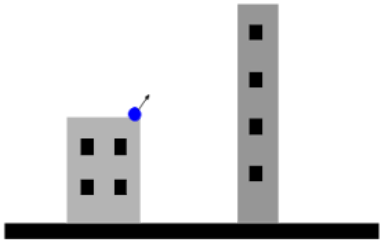
1) A mountain climber encounters a gap in an ice field. The opposite side of the gap is 2.75m lower, and is separated horizontally by a distance of 4.1m. To cross the crevasse, the climber gets a running start and jumps in the horizontal direction.

(A) What is the minimum speed needed by the climber to safely cross the gap?

(B) What is the climber's velocity right before landing?



2) A ball is thrown from the top of one building 70m high toward a tall building 50 meters away. The initial velocity of the ball is 15 m/s at 40 degrees above the horizontal. How high above the ground will the ball strike the opposite wall?



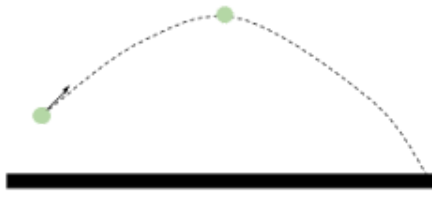
3) A tennis player hits a ball with an initial speed of 23.6 m/s perfectly horizontally. The ball is 2.37 meters above the ground when struck by the racquet. If the net is 12 meters from the ball (in the x –direction), and the net height is 0.90 meters, by how much does the ball clear the net?

4) A rock is tossed at a 42 degree angle at an initial height of 1.2 meters from the ground. 1.6 seconds after release, the rock reaches its maximum height.

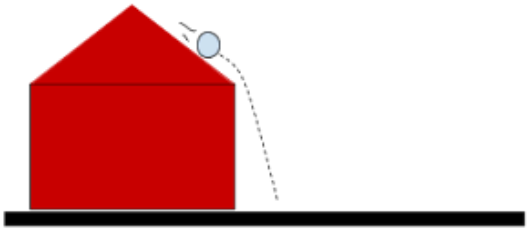
(A) Find the initial velocity

(B) The Maximum height

(C) The velocity at maximum height



5) A snowball rolls off a barn roof that slopes downward at an angle of 40 degrees below the horizontal. The edge of the roof is 14m above the ground, and the snowball has a speed of 7 m/s as it rolls off the roof.
(A) How far from the edge of the barn does the snowball strike the ground?
(B) A man 1.9 m tall is standing 4 meters from the edge of the barn. Will he be hit by the snowball?



7) If gravity on the moon is 1/6 of gravity here on earth, compare the height of a rocket that launches straight up with an initial speed of 30m/s here on earth to what it would be on the moon.