# Projectile Motion Test Review

ⓘ This is a preview of the draft version of the quiz

Started: Dec 10 at 11:04am

## Quiz Instructions

This quiz will also help you review for the District Final.

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### Question 1 — 1 pts

According to the definition of "free fall", freely falling objects are falling only by the influence of:

- velocity
- acceleration
- air resistance
- gravity

### Question 2 — 1 pts

Examine the picture above showing a ball being dropped off a cliff. Select the graph that represents the relationship between vertical velocity and time for the freely falling ball.

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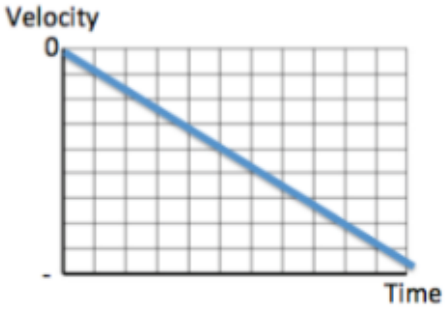
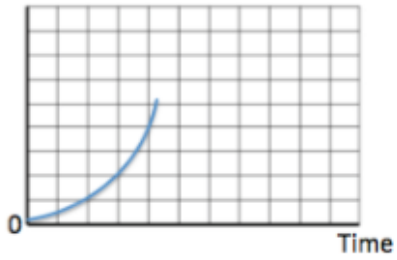




## Question 3

1 pts

In the picture above, the boy has thrown a ball straight up. Select the statements below that correctly describe the velocity and acceleration when the ball reaches the highest point (the peak):

- velocity is 9.8 m/s and its acceleration is 9.8 m/s/s

- velocity is zero and its acceleration is zero
- velocity is zero and its acceleration is 9.8 m/s/s
- velocity is 9.8 m/s and its acceleration is zero

## Question 4

1 pts

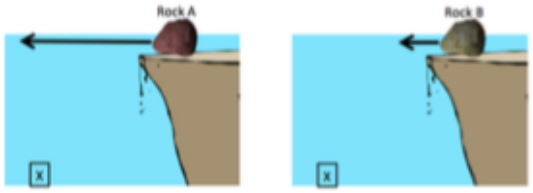
On Earth, all free falling objects accelerate downward at a rate of _____.

- 1.6 m/s/s
- 0 m/s/s
- None of the options.
- 9.8 m/s/s

## Question 5

1 pts

Two identical rocks, A and B, are projected off the edge of a 2.0 m cliff. Rock A has a horizontal velocity of 5.0 m/s and rock B has a horizontal velocity of 3.5 m/s. (assume air resistance is negligible)



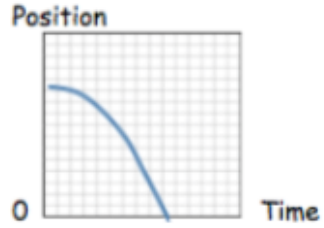

If both rocks leave the edge of the cliff at the same instant, what time will rock A will hit the ground:

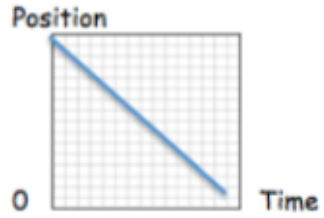
- before rock B hits the ground
- after rock B hits the ground
- at the same time as rock B hits the ground

## Question 6

1 pts

Examine the picture above showing a ball being dropped from a cliff. Select the graph that represents the relationship between vertical position and time for the freely falling ball.

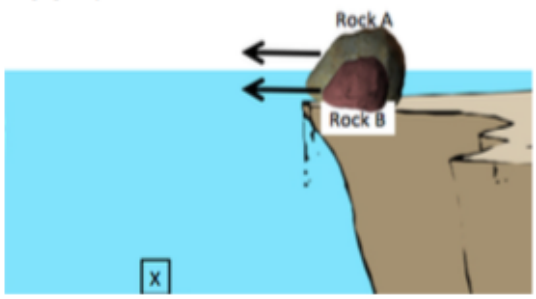




## Question 7

1 pts

Two identical rocks, 'A' and 'B', are projected off the edge of a 2.0 m high cliff with the same horizontal velocity. Rock 'A' has a mass of 10.0 g and rock B has a mass of 5.0 g. (assume air resistance is negligible)



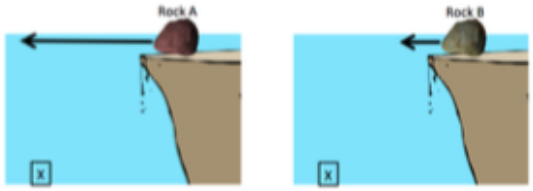

If both rocks leave the edge of the cliff at the same instant, rock 'A' hits the ground at the spot marked 'X'. Rock 'B' will hit the ground:

- at some point past 'X'
- on the spot marked 'X'
- at some point between the edge of the cliff and 'X'

## Question 8

1 pts

Two identical rocks, A and B, are projected off the edge of a 2.0 m cliff. Rock A has a horizontal velocity of 5.0 m/s and rock B has a horizontal velocity of 3.5 m/s. (assume air resistance is negligible)



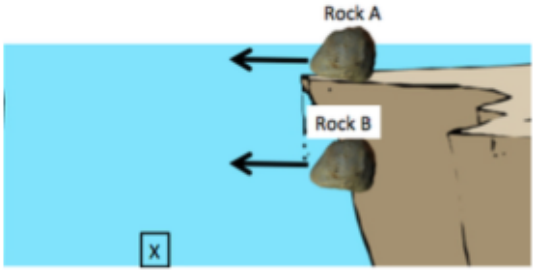

Both rocks leave the edge of the cliff at the same instant. The image shows that rock A will hit the floor on the 'X'. Based on their horizontal velocities. Rock B will hit the ground:

- at some point between the edge of the cliff and 'X'
- on the 'X'
- at some point past 'X'

## Question 9

1 pts

Two rocks 'A' and 'B' are projected at the same horizontal velocity off the edge of two different height cliffs. The starting height of rock 'A' is 2.0 meters, while the starting height of rock 'B' is 1.0 meter. Both rocks have the same size and mass.



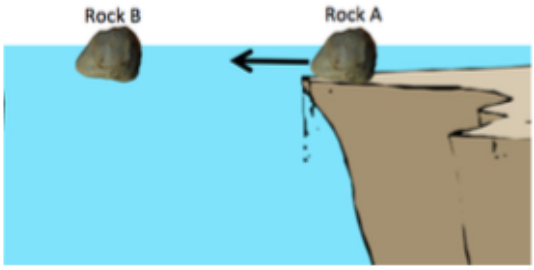

If both rocks leave the edge of the cliff at the same instant, rock 'A' will hit the ground:

- after rock 'B' hits the ground
- at the same time as rock 'B' hits the ground
- before rock 'B' hits the ground

## Question 10

1 pts

Rock 'A' is projected off the edge of a 1.0 m high cliff with a horizontal velocity of 2.0 m/s. Rock 'B' is dropped from the same height as rock 'A'. Both rocks have the same size and mass.



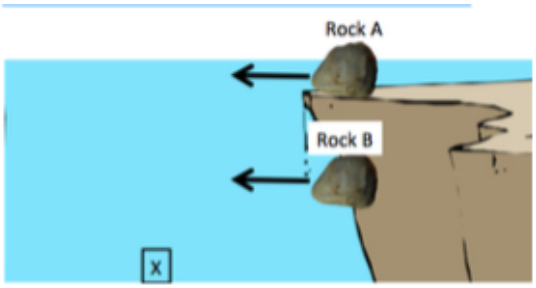

If rock 'A' leaves the edge of the cliff at the same instant rock 'B' is dropped, rock 'A' will hit the floor:

- after rock 'B' hits the floor
- at the same time as rock 'B'
- before rock 'B' hits the floor

## Question 11

1 pts

Two rocks 'A' and 'B' are projected at the same horizontal velocity off the edge of two different height cliffs. The starting height of rock 'A' is 2.0 meters, while the starting height of rock 'B' is 1.0 meter. Both rocks have the same size and mass.




If both rocks leave the edge of the cliff at the same instant, rock 'A' hits the ground at the spot marked 'X'. Rock 'B' will hit the ground:

- at the spot marked 'X'
- at some point between the edge of the cliff and 'X'
- at some point past 'X'

## Question 12

1 pts

Bullet 'A' is fired horizontally from a gun at a height of 1 m. Bullet 'B' is dropped from the same height at the same time that bullet 'A' is fired from the gun. Which of the following statements would be true for bullet 'A' and 'B'? (neglect air resistance)

- Both bullets hit the ground at the same time
- Bullet 'B' hits the ground first
- Bullet 'A' hits the ground first

## Question 13

1 pts

Balls 'A' and 'B' are launched horizontally from a height of 2 meters. When the balls strike the ground, ball 'A' has traveled a horizontal distance of 2 meters while ball 'B' has traveled a horizontal distance of 4 meters. Which of the following is true?

- Ball 'B' traveled a vertical distance twice as great as ball 'A'
- Ball 'B' was in the air twice as long as ball 'A'
- Ball 'B' had twice the mass of ball 'A'
- Ball 'B' had a launch velocity twice as great as ball 'A'

## Question 14

**1 pts**

Which of the following is the best example of a projectile?

- All of the options
- A flying butterfly
- A jet plane flying
- A thrown baseball

## Question 15

**1 pts**

The path of a projectile is the _____.

- horizontal range
- radius
- trajectory
- centripetal force

## Question 16

1 pts

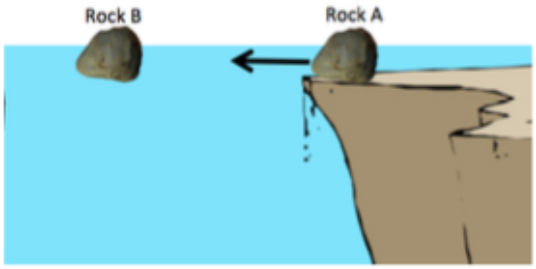
A ball is thrown up into the air. At the highest point in its trajectory the net force acting on it is:

- zero Newtons
- equal to its weight
- greater than its weight
- less than its weight, but not zero Newtons

## Question 17

1 pts

Rock 'A' is projected off the edge of a 1.0 m high cliff with a horizontal velocity of 2.0 m/s. Rock 'B' is dropped from the same height as rock 'A'. Both rocks have the same size and mass.



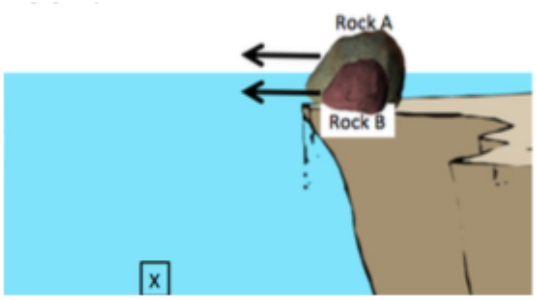

Rock 'A's vertical speed at the point of impact is:

- greater than the vertical speed of rock 'B'
- less than the vertical speed of rock 'B'
- the same vertical speed as rock 'B'

## Question 18

1 pts

Two identical rocks, 'A' and 'B', are projected off the edge of a 2.0 m high cliff with the same horizontal velocity. Rock 'A' has a mass of 10.0 g and rock B has a mass of 5.0 g. (assume air resistance is negligible)

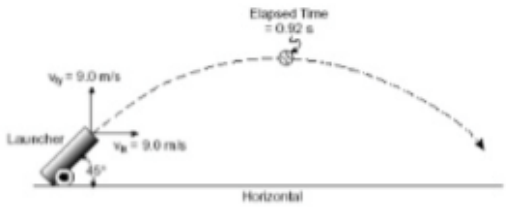



If both rocks leave the edge of the cliff at the same instant, rock 'A' will hit the ground:

- before rock 'B' hits the ground
- after sphere 'B' hits the ground
- at the same time as rock 'B'

## Question 19

1 pts




The speed at which a launcher fires tennis balls is constant, but the angle between the launcher and the horizontal can be varied. As the angle is decreased from 45 degrees to 30 degrees, the range of the tennis ball _____.

- decreases
- increases
- remains the same

## Question 20

1 pts


What angle would give the tennis ball launcher the greatest range?

- 45 degrees
- 15 degrees
- 30 degrees
- 75 degrees

## Question 21

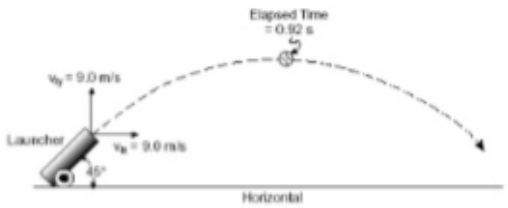
1 pts

A boy is eating a cherry in the back seat of a car moving at a constant velocity. When he is finished eating, he drops the pit out of the window. When the pit hits the ground, where is the pit compared to the boy? (ignore friction and air resistance)

- beside him
- in front of him
- behind him

## Question 22

1 pts




The trajectory of a projectile fired at a 45 degree angle to the horizontal is best described as:

- linear
- parabolic
- hyperbolic
- circular

## Question 23

**1 pts**

An object near the surface of planet Z falls freely from rest and reaches a speed of 16 m/s after is has fallen 8 meters. What is the acceleration in m/s/s due to gravity on planet Z?

Hint: Use the time independent kinematic equation and set the initial velocity equal to zero.

## Question 24

**1 pts**

A rock falls freely from rest near the surface of a planet where the acceleration of gravity is 6 m/s/s. What is the speed in m/s of this rock after it falls 42 meters?

Hint: Use the time independent kinematic equation and set the initial velocity equal to zero.

## Question 25

**1 pts**

A ball is dropped from a bridge and takes 4 seconds to reach the water below. How far is the bridge above the water in meters?

g = -10 m/s/s

## Question 26

1 pts

A student standing on the roof of a 60 meter tall building kicks a stone at a horizontal speed of 3 m/s off the roof. Assume no air resistance. g = -9.8 m/s/s

How much time in seconds is required for the stone to reach the ground below?

## Question 27

1 pts

A student standing on the roof of a 60 meter tall building kicks a stone at a horizontal speed of 3 m/s off the roof. Assume no air resistance. g = -9.8 m/s/s

How far horizontally in meters will the stone land from the base of the building?

## Question 28

1 pts

A soccer ball kicked on a level field has an initial vertical velocity component of 18 m/s up and a horizontal component of 24 m/s to the right. Assuming the ball lands at the same height from which is was kicked, what is the total time in seconds the ball is in the air?

g = -9.8 m/s/s

## Question 29

1 pts

A soccer ball kicked on a level field has an initial vertical velocity component of 18 m/s up and a horizontal component of 24 m/s to the right. Assuming the ball lands at the same height from which is was kicked, what is the total horizontal distance in meters the ball is in the air?

g = -9.8 m/s/s

## Question 30

1 pts

A soccer ball kicked on a level field has an initial vertical velocity component of 18 m/s up and a horizontal component of 24 m/s to the right. Assuming the ball lands at the same height from which is was kicked, what is the maximum height reached by the ball while it is in the air?

g = -9.8 m/s/s

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