

## P11 - 1.2 - Ball Drop/Launch Hmk

How long does it take for a ball to drop 5 m?  
What is the ball's velocity before impact?

How long does it take for a ball to drop 20 m?  
What is the ball's velocity before impact?

A ball with an initial velocity of 5 m/s is launched vertically. What is the velocity of the ball at the maximum height? How long does it take to reach the maximum height? How long does it take to travel up and down? What is the ball's velocity before impact?

A ball with an initial velocity of 12 m/s is launched vertically. What is the velocity of the ball at maximum height? How long does it take to reach the maximum height? How long does it take to travel up and down? What is the velocity of the ball before impact?

## P11 - 1.2 - Ball Drop Throw Up from Building Hmk

A ball is launched vertically from a 10 meter building with an initial velocity of 8 m/s. How high will the ball get? How long will it take to reach its maximum height? How long will it be in the air total before reaching the ground? What is the velocity before impact?

A ball is launched vertically from my 20 meter lead with an initial velocity of 8 m/s. How high will the ball get? How long will it take to reach its maximum height? How long will it be in the air total before reaching the ground? What is the velocity of the ball before impact?

## P11 - 1.2 - Ball Drop Throw Down from Building Hmk

A ball is thrown directly down from a 12 m building at 5 m/s. How long will it take for the ball to reach the ground? What will the velocity of the ball be directly before impact?

A ball is thrown directly down from a 125 meter building at 5 m/s. How long will it take for the ball to reach the ground? What will the velocity of the ball be directly before impact?

## P11 - 1.3 - Ball shot straight off cliff Notes Hmk

A ball is ejected parallel to the ground from a 10 meter building at 8 m/s. How long will it take for the ball to reach the ground? How far away from the building will it land? What will be the resultant velocity and angle of impact?

A ball is ejected parallel to the ground from a 70 meter building at 12 m/s. How long will it take for the ball to reach the ground? How far away from the building will the ball land? What will be the resultant velocity and angle of impact?

## P12 - 1.1 - Cliff Down Projectile Motion HMK

A ball is shot from 80 m cliff at 5 m/s at an angle of  $20^\circ$  below the horizontal. What is the max height? What is the time in flight? What is the distance the ball travels? What is the angle and resultant velocity of impact?

A ball is shot from 10 m cliff at 105 m/s at an angle of  $15^\circ$  below the horizontal. What is the max height? What is the time in flight? What is the distance the ball travels? What is the angle and resultant velocity of impact?

## P12 - 1.1 - Ball shot Down Angle Hmk

A ball is shot from at 24 meter building with an initial velocity of 8 m/s at an angle of  $20^\circ$  below the horizontal. What is time in flight? How far away from the building does the ball land? What is the resultant velocity and angle of impact?

## P12 - 1.1 - Projectile Motion Ground Hmk

A ball is launched at 20 m/s at an angle of  $30^\circ$  above the horizontal. What is the maximum height of the ball? What is the time in flight? What is the total distance the ball travels? What is the resultant velocity and angle of impact?

A ball is launched at 12 m/s off a 20 meter building at an angle of  $40^\circ$  above the horizontal. What is the maximum height of the ball? What is the time in flight? What is the total distance the ball travels? What is the resultant velocity and angle of impact?

## P12 - 1.1 - Projectile Motion HMK

A ball is shot at 40 m/s at an angle of  $30^\circ$  above the horizontal. What is the max height? What is the time in flight? What is the distance the ball travels? What is the angle and resultant velocity of impact?

A ball is shot at 150 m/s at an angle of  $70^\circ$  above the horizontal. What is the max height? What is the time in flight? What is the distance the ball travels? What is the angle and resultant velocity of impact?



## P12 - 1.1 - Cliff Up Projectile Motion HMK

A ball is shot from 35 m cliff at 45 m/s at an angle of  $30^\circ$  above the horizontal. What is the max height? What is the time in flight? What is the distance the ball travels? What is the angle and resultant velocity of impact?

A ball is shot from 30 m cliff at 85 m/s at an angle of  $60^\circ$  above the horizontal. What is the max height? What is the time in flight? What is the distance the ball travels? What is the angle and resultant velocity of impact?

## P12 - 1.2 - River Boat Current

Jerry swims south across a 20 meter River. Jerry swims at 3 m/s in Stillwater. The river flows east with a velocity of 2 m/s. What is Jerry's resultant velocity? How long does it take to cross? How far downriver does Jerry land? What is Jerry's displacement?

At what heading should Jerry had to arrive directly across the river? What is Jerry's resultant velocity? At this heading how long will it take to cross? What is Jerry's displacement?