

$$P11 - 2.1 - v = \frac{d}{t} \text{ Hmk}$$

What is the speed of a whale who swam 120 meters in eight seconds?

What is the velocity of a whale who swam 120 meters in eight seconds?

If you run 100 m north and then 50 meters south in 30 seconds. What is your distance travelled? What is your displacement? What is your speed? What is your velocity?

If you drive 600 m north and 800 m west in 50 seconds. What is your distance travelled? What is your displacement? What is your speed? What is your velocity?

If you are 20 m south and 10 m east in eight seconds. What is your distance travelled? What is your displacement? What is your speed? What is your velocity?

$$P11 - 2.1 - v = \frac{d}{t} \text{ Hmk}$$

How long does it take to drive 100 km travelling at 10 km/h?

How long does it take to walk 20 m travelling at 2 m/s?

How long does it take to bicycle 80 m travelling at 6 m/s

How far can you drive at 75 km/h for three hours?

How far can you bicycle at 10 m/s for seven seconds?

How far can you walk at 5 m/s for 22 seconds?

## P11 - 2.1 - Average Speed HMK

If a car travels for four hours at 60 km/h and one hour at 10 km/h what is the average speed

If a bicycle travels 22 m/s for 10 second and 7 m/s for nine seconds what is the average speed?

If a whale travels 100 km in three days and 2 km in four hours what is the average speed in meters per second?

$$P11 - 2.2 - a = \frac{v}{t} \text{ Hmk}$$

What is the acceleration of a bicycle that reaches 24 m/s in six seconds from rest?

What is the acceleration of the cheetah that reaches 18 m/s in two seconds?

What is the acceleration on a sleeping bear that wakes up and reaches 12 m/s in five seconds?

How long does it take a police car to reach 40 m/s accelerating at 8 m/s squared?

How long does it take a motorcycle to reach 45 m/s accelerating at 5 m/s squared?

How long does it take a rabbit to reach 8 m/s accelerating at 3 m/s squared?

How fast will a well get if it accelerates at 2 m/s squared for nine seconds?

How fast will a Lion and get if it accelerates four 4 m/s squared for nine seconds?

How fast will a narrow plane reach if it accelerates at 25 m/s squared for 12 seconds?

What is the acceleration of a rocket that accelerates from 200 m/s to 440 m/s in six seconds?

What is the acceleration of a police car that accelerates from 10 m/s to 18 m/s in three seconds?

What is the acceleration of a bicycle slowing down from 25 m/s to 10 m/s in three seconds?

$$P11 - 2.2 - a = \frac{v}{t}, "v_f = v_i + at" HMK$$

What speed will a cheetah reach if she accelerates from rest at 4 m/s squared for five seconds?

What speed will a rabbit reach if it accelerates from rest at 2 m/s for four seconds?

How long will it take to accelerate to 8 m/s from rest at 2 m/s squared?

How long will it take to accelerate to 60 m/s from rest at 5 m/s squared?

How long will it take to accelerate from 8 m/s to 22 m/s accelerating at 2 m/s squared?

How long will it take to accelerate from 12 m/s to 60 m/s at 2 m/s squared?

How fast does a car reach accelerating at 5 m/s squared starting at 10 m/s for six seconds?

How fast is a car reach accelerating at 3 m/s squared starting at 5 m/s for six seconds?

What is the initial velocity of a car that reaches 30 m/s accelerating at 5 m/s squared for three seconds?

What is the initial velocity of a truck that reaches 45 m/s accelerating at 3 m/s squared for six seconds?

If a ball rolls up a gentle incline with an initial velocity of 10 m/s and after five seconds it is rolling down the hill with the velocity of 5 m/s, what is the ball's acceleration. Ignore gravity

## P11 - 2.3 - Ball Drop Hmk

How long does it take for a ball to drop 12 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?

## P11 - 2.4 - Ball Launch Hmk



A ball with an initial velocity of 8 m/s is launched vertically. What is the velocity of the ball at the maximum height? How high does the ball go? How long does it take to reach the maximum height? How long does it take to travel up and down? What is the balls velocity before impact?

## P11 - 2.5 - 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 - 2.6 - 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 - 2.7 - 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 - 2.8 - 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 - 2.9 - Projectile Motion Ground 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 - 2.9 - Projectile Motion 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 - 2.10 - 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 - 2.11 - 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?