Projectile Assignment Name _____

1. A stone is thrown horizontally at a speed of 5.0 m/s from the top of a cliff that is 78.4 m high.

$Y_{initial}$	$X_{initial}$	$V_{x\text{-}initial}$	a_x
			0 m/s^2
Y_{final}	X_{final}	$V_{y\text{-}initial}$	a_y
			-9.8 m/s^2

How long does it take the stone to reach the bottom of the cliff?	
Equation to Use	**Math / Solution**
Answer with Units	

How far from the base of the cliff does the stone hit the ground?	
Equation to Use	**Math / Solution**
Answer with Units	

Find the horizontal and vertical components of the stone's velocity just before it hits the ground. What is the final velocity?	
Equation to Use	**Math / Solution**
Answer with Units	

2.

Projectile Assignment Name _____

3. A player kicks a football from ground level with an initial velocity of 27.0 m/s, 30.0° above the horizontal, as shown in Figure 6-4.Find each of the following. Assume that air resistance is negligible.

$X_{initial}$	**Initial Speed**	$V_{x\text{-}initial}$
X_{final}	**Initial Angle**	$V_{y\text{-}initial}$

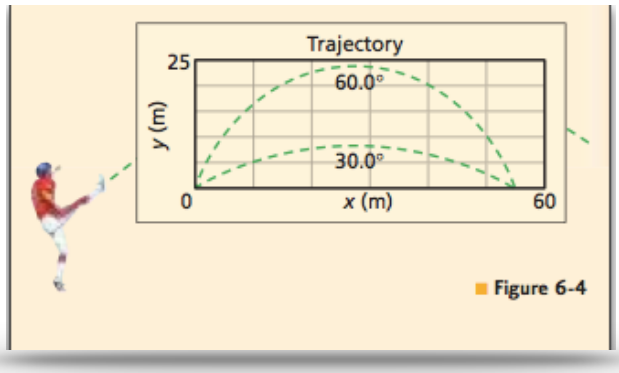


Figure 6-4

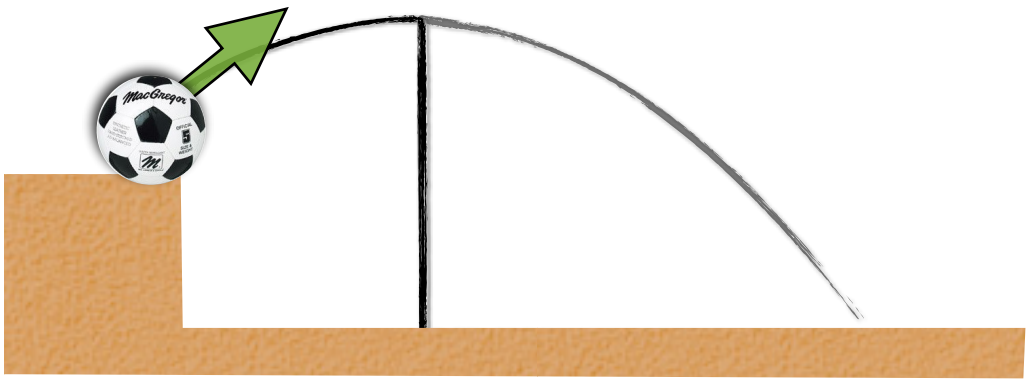
What is the ball's hang time?	
Equation to Use	**Math / Solution**
Answer with Units	

What is the ball's maximum height?	
Equation to Use	**Math / Solution**
Answer with Units	

What is the ball's range?	
Equation to Use	**Math / Solution**
Answer with Units	

Projectile Assignment Name _____

4. A soccer ball is kicked from the top of a 180 m cliff with an initial velocity of 57 m/s at 39°.



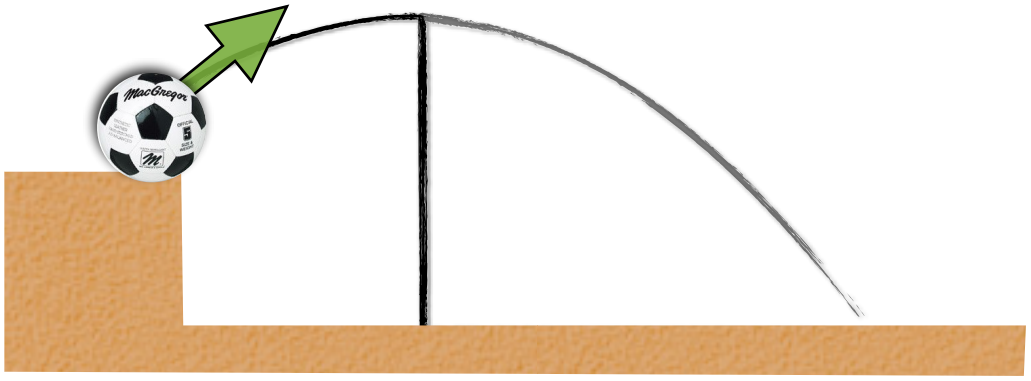
$Y_{initial}$	$X_{initial}$	**Initial Speed**	$V_{x\text{-}initial}$	a_x
				0 m/s^2
Y_{final}	X_{final}	**Initial Angle**	$V_{y\text{-}initial}$	a_y
				-9.8 m/s^2

Find the maximum height	
Equation to Use	**Math / Solution**
Answer with Units	

Find the time to the top, and to the ground	
Equation to Use	**Math / Solution**
Answer with Units	

Projectile Assignment Name _____

5.



Find the final Y velocity, and the resutltant velocity	
Equation to Use	**Math / Solution**
Answer with Units	

Find the range.	
Equation to Use	**Math / Solution**
Answer with Units	

6. Florence Griffith-Joyner of the United States set the women's world record for the 200 m run by running with an average speed of 9.37 m/s. Suppose Griffith-Joyner wants to jump over a river. She runs horizontally from the river's higher bank at 9.37 m/s and lands on the edge of the opposite bank. The difference in height between the two banks is 2.00 m.

Diagram-It

$Y_{initial}$	Initial Speed	$V_{x\text{-}initial}$	a_x
			0 m/s²
Y_{final}	Initial Angle	$V_{y\text{-}initial}$	a_y
			-9.8 m/s²

How long does it take her to reach the bottom of the cliff?

Equation to Use	Math / Solution
Answer with Units	

How wide is the river?

Equation to Use	Math / Solution
Answer with Units	