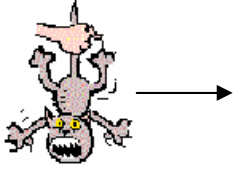


## Chapter 3 Horizontal Projectile Motion Lecture Worksheet

***Horizontal Motion Class Practice Problem***

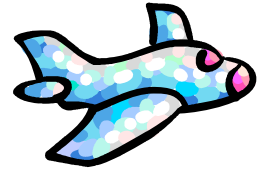
***Splat the cat is tossed horizontally at 20 m/s  
off a cliff that is 50 m high.***



a) How long was Splat in the air?

b) How far from the base of the cliff did Splat land?

c) How fast is Splat moving before he goes ***Splat?***



### ***Example #2***

**A plane that is moving 200 m/s drops a package. The package takes 15 seconds to reach the ground.**

A) What height was the package dropped from?

B) How far did the plane travel from the time the package was released until the package hit the ground? Is this the same distance the package travels?

C) How fast was the package moving when it hit the ground?



Name \_\_\_\_\_

## Horizontal Projectile Motion Problems

Physics



Directions: Answer each of the following questions and show all equations and work.

1. You accidentally throw your car keys horizontally at  $8.0 \text{ m/s}$  from a cliff that is  $64 \text{ km}$  high. How far from the base of the cliff should you look for the keys?
  
  
  
  
  
  
  
  
  
  
2. A toy car runs off the edge of the table that is  $1.225 \text{ m}$  high. If the car lands  $0.400 \text{ m}$  from the base of the table:
  - a) How long did it take the car to fall?
  
  
  
  
  
  
  
  
  
  
  - b) How fast was the car going on the table?
  
  
  
  
  
  
  
  
  
  
3. You take a running leap off a high diving platform. You were running at  $2.8 \text{ m/s}$  and hit the water  $2.6 \text{ s}$  later.
  - a) How high was the platform?
  
  
  
  
  
  
  
  
  
  
  - b) How far from the edge of the platform did you hit the water?

4. An airplane traveling 1001 m above the ocean at 125 km/hr is to drop a box of supplies to shipwrecked victims below.
- a) How long will it take for the box to reach the ground?
- b) What is the horizontal distance between the plane and the victims when the box is dropped?
5. Divers in Acapulco dive from a cliff that is 61 m high. If the rocks below extend outward for 23m. What is the minimum horizontal velocity a diver must have to clear the rocks?
6. A steel ball rolls with constant velocity across a tabletop 0.950 m high. It rolls off and hits the ground 0.352 m from the edge of the table. How fast was the ball rolling just before it fell from the table?
7. A stone is thrown horizontally at 15 m/s from the top of a cliff. It takes 5 s to reach the ground.
- a) How far from the base of the cliff does the stone land?
- b) How fast is it moving just before it strikes the ground?