Physics Homework
Chapter 3.3 - 3.4

Name ___Answers_____

Date _____

Complete	Accurate	On Time	Follow instructions

Write the BEST, correct answer in the blank provided.

1. The curved path that an object follows when thrown, launched, or otherwise projected near the surface of the earth is …..
2. The path of a projectile is called its.....
3. The shape of the path of a true projectile is a .....
4. When a projectile is fired to hit a target, it must be fired ..... the target.
5. A projectile can be considered to be in .....
6. The vertical component of a projectile's motion has an acceleration of …...
7. Objects that are thrown or launched into the air and are subject to gravity are called…..

1. _projectile motion____
2. __trajectory_____
3. __parabola_____
4. __above_____
5. ___free fall_____
6. ____9.81 m/s^2_____
7. ___projectiles_____

Use completes sentences to answer the following questions in the space provided.

8. When a bullet is fired from a gun the horizontal and vertical motions are independent. Explain how this is possible.

No component of the horizontal motion can be expressed in the vertical direction and vice versa.

9. Explain how the sights on a gun help the bullet reach the target.

The sights raise the barrel of the gun so the bullet rises up then falls to the target. The gun must be sighted for a specific distance.

10. What is a frame of reference?

A frame of reference is an arbitrary fixed point accepted to have no motion.

11. Explain the difference in an inertial and noninertial frame of reference.

An inertial frame of reference has no change in its motion. A non inertial frame of reference is accelerating.

PROBLEMS: *Show your work in completing the following. Write the answers with the correct number of significant digits.*

12. A projectile is fired horizontally with a velocity of 725 m/s.
What horizontal distance does the projectile travel in 0.750 s?

12. ___544 m_____

From what height was the projectile fired if it hit the ground after 0.750 s?

___2.76 m_____

13. A steel projectile is shot horizontally at 20.0 m/s from the top of a 49.0 m tower. How far from the base of the tower does it hit the ground?

13. __63.2 m_____

14. A stone is thrown horizontally at a speed of 10.0 m/s from the top of a cliff 78.4 m high.
How much time does it take the stone to reach the bottom of the cliff?

14. ___4.00 s_____

How far from the base of the cliff does the stone strike the ground?

___40.0 m_____

15. A projectile is fired with a speed of 196 m/s at an angle of 60.0 degrees with the horizontal.
Calculate the vertical velocity and the horizontal velocity of the projectile.

15. V___ 1.70×10^2 m/s__
H___98.0 m/s _____

Calculate the time the projectile is in the air.

___34.7 s_____

Calculate the horizontal distance the projectile travels.

___3.40×10^3 m_____

16. A projectile is fired at 53.00 with the horizontal. The speed of the projectile is 200.0 m/s.
Calculate the time the shell remains in the air.

16. ___32.6 s_____

Calculate the horizontal distance it travels.

_____3 920 m_____

17. An arrow is fired directly at the bull's-eye of a target 60.0 m away. The arrow has the speed of 89.0 m/s. When it is fired, the arrow is 1.00 m above the ground. How far short of the target does it strike the ground?

17. ____19.8 m_____

18. While standing on an open bed of a truck moving at 35.0 m/s an archer sees a duck flying directly overhead. The archer shoots an arrow at the duck and misses. The arrow leaves the bow with a vertical velocity of 98.0 m/s. The truck maintains a constant speed of 35.0 m/s and does not change its direction. Neglect air resistance to answer these.
How long does the arrow remain in the air?

18. ____20.0 s_____

Where does the arrow finally land?

_on top of the hunter__

What horizontal distance does the arrow travel while it is in the air?

__7.00 x 10^2 m____