

Name: \_\_\_\_\_

Date: \_\_\_\_\_ Block: \_\_\_\_\_

Physics Test Review  
Accelerated & Projectile Motion – Round 2

Equations:

$$\Delta x = \frac{1}{2}at^2 + v_i t$$

$$v_f = at + v_i$$

$$v_f^2 = v_i^2 + 2a\Delta x$$

$$v_x = \Delta x / t$$

$$\Delta x_y = \frac{1}{2}at^2 + v_{iy}t$$

$$v_{fy} = at + v_{iy}$$

$$v_{fy}^2 = v_{iy}^2 + 2a\Delta x_y$$

**Draw a diagram/picture of the situation. Be sure to list all knowns and unknowns in columns. Show all calculations and CIRCLE YOUR ANSWERS.**

1. A diver runs horizontally with a speed of 1.20 m/s off a platform that is 10.0 m above the water. What is his speed just before striking the water?

2. A car drives straight off the edge of a cliff that is 54 m high. The police at the scene note that the point of impact is 130 m from the base of the cliff. How fast was the car traveling when it went over the cliff?

3. The Royal Gorge Bridge in Colorado rises 321 m above the Arkansas River. Suppose you kick a rock horizontally off the bridge. The magnitude of the rock's horizontal displacement is 45.0 m. Find the speed at which the rock was kicked.

4. A baseball rolls off a 0.70 m high desk and strikes the floor 0.25 m away from the base of the desk. How fast was the ball rolling?

5. A cat chases a mouse across a 1.0 m high table. The mouse steps out of the way, and the cat slides off the table and strikes the floor 2.2 m from the edge of the table. When the cat slid off the table, what was its speed?

6. Luke Autbeloe is riding in a hot air balloon drops his camera from an altitude of 70 m. How long does it take the camera to reach the ground? What is the velocity of the camera just before it hits the ground?

7. A car moving on a straight road increases its speed at a uniform rate of 10 m/s to 20 m/s in 5.0 s. What is its acceleration? How far did it go during those 5.0 s?

8. A ball rolls down a hill with a constant acceleration of  $3.0 \text{ m/s}^2$ . If it starts from rest, what is its speed at the end of 4.0 s? How far did the ball move in that 4.0 s?

9. According to Guinness, the tallest man to have ever lived was Robert Pershing Wadlow of Alton, Illinois. He was last measured in 1940 to be 2.72 meters tall (8 feet, 11 inches). Determine the speed which a quarter would have reached before contact with the ground if dropped from rest from the top of his head.

10. A driver moving at a constant velocity of 25 m/s applies the brakes when he sees a deer in the middle of the road 130 m away. If he accelerates at a constant rate and comes to a stop after 10 seconds, does he hit the deer?