

Name: _____

Score: _____

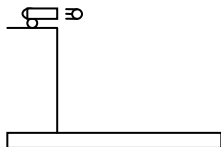
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Regents Physics

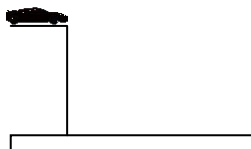
Horizontally Launched Projectiles

Show all work – multiple choice answers MUST be proven for full credit!

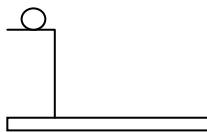
1. A cannonball is fired from a cliff that is 50 meters above the ground. The cannonball is fired horizontally with a speed of 120 meters per second. Calculate the horizontal distance that the cannonball will travel.



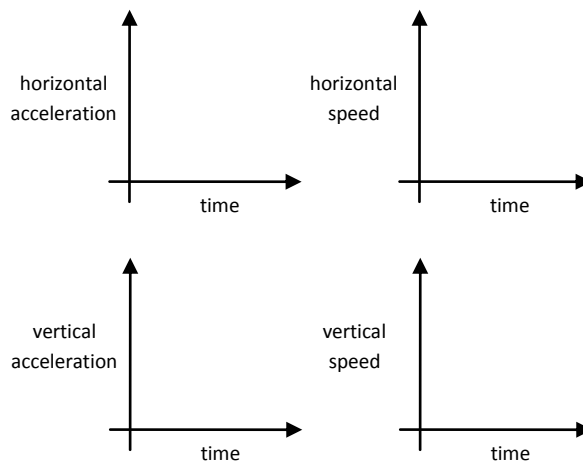
2. A stunt car traveling toward the edge of a cliff at 25 meters per second lands 50 meters measured horizontally from the edge of the cliff. Determine the height of the cliff.



3. A ball rolls toward the edge of a table that is 110 centimeters high and lands 2.0 meters away from its edge. Determine the speed with which the ball rolls off the edge.



4. Sketch a set of graphs that relate the variables shown on the axes for an object that is thrown off a building horizontally.



5. An object is projected horizontally at 400 meters per second. If the object falls freely to the ground in 2.0 seconds, at what height did it begin its fall?

- | | |
|-----------|------------|
| (1) 4.9 m | (3) 19.6 m |
| (2) 9.8 m | (4) 200 m |

Proof: Show calculation.

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6. A ball is thrown horizontally from the top of a building with an initial velocity of 15 meters per second. At the same instant, a second ball is dropped from the top of the building. The two balls have the same

- (1) path as they fall
- (2) final velocity as they hit the ground
- (3) initial horizontal velocity
- (4) initial vertical velocity

Proof: Explain.

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7. An object launched horizontally from the top of a building with a speed of 10 meters per second reaches the ground in 1.0 seconds. What is the horizontal acceleration of this object?

- | | |
|-------------------------|-------------------------|
| (1) 0 m/s^2 | (3) 0.5 m/s^2 |
| (2) 0.1 m/s^2 | (4) 1.0 m/s^2 |

Proof: Explain.

8. A ball is thrown horizontally from the top of a tower with an initial velocity of 20 meters per second, what is the horizontal velocity of the ball as it hits the ground?

- | | |
|--------------|--------------|
| (1) 9.81 m/s | (3) 34.3 m/s |
| (2) 20.0 m/s | (4) 68.6 m/s |

Proof: Explain or show calculation.

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9. A red ball leaves a table moving at 5.0 meters per second at the same time that a green ball leaves the same table moving at 10.0 meters per second. During their trips to the ground, compared to the red ball, the green ball will

- (1) fall for more time and go farther horizontally
- (2) fall for the same time and go farther horizontally
- (3) fall for less time and go less distance horizontally
- (4) fall for the same time and go less distance horizontally

Proof: Explain or show calculations.