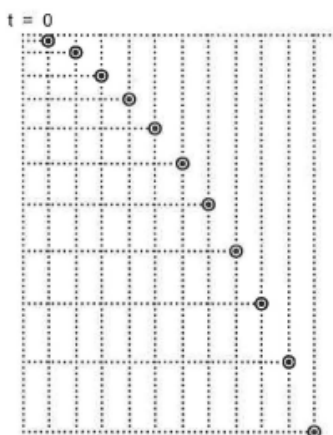


Projectile Motion (Horizontally Launched)

Name:

Block:

- An object is thrown horizontally at a velocity of 10.0 m/s from the top of a 90.0 m building. Calculate the distance from the base of the building that the object will hit the ground.
- An object is thrown horizontally at a velocity of 25.0 m/s from the top of a 1.50×10^2 m building. Calculate the distance from the base of the building that the object will hit the ground.
- An object is thrown horizontally at a velocity of 18.0 m/s from the top of a cliff. If the object hit the ground 100.0 m from the base of the cliff, how high is the cliff?
- An object is thrown horizontally at a velocity of 20.0 m/s from the top of a cliff. If the object hit the ground 48.0 m from the base of the cliff, how high is the cliff?
- An object is thrown horizontally from the top of a building at a velocity of 15.0 m/s. If the object takes 5.50 s to reach the ground, how high is the building?
- An object is thrown horizontally from the top of a cliff at a velocity of 20.0 m/s. If the object takes 4.20 s to reach the ground, how far from the base of the cliff did the object hit the ground?
- An object is thrown horizontally from the top of an 85.0 m building. If the object hits the ground 67.8 m from the base of the building, what was the horizontal velocity of the object?
- The dots below represent the position of a projectile every 0.10 s as it is projected horizontally to the right along an inclined air table. For this question, consider down and right as the positive directions.
 - Complete the table.
 - Using your horizontal velocity, draw a velocity-time graph.
 - Using your vertical velocity, draw a velocity-time graph.
 - Using your graphs, find
 - the horizontal acceleration.
 - the vertical acceleration.



| Time (s) | Displacement from t=0 (cm) | | Displacement During Time Interval (cm) | | Average Velocity During Time Interval (cm/s) | |
|----------|----------------------------|----------|--|----------|--|----------|
| | Horizontal | Vertical | Horizontal | Vertical | Horizontal | Vertical |
| 0.00 | 0.00 | 0.00 | | | | |
| 0.10 | 0.50 | 0.15 | | | | |
| 0.20 | 1.00 | 0.30 | | | | |
| 0.30 | 1.50 | 0.70 | | | | |
| 0.40 | 2.00 | 1.10 | | | | |
| 0.50 | 2.50 | 1.60 | | | | |
| 0.60 | 3.00 | 2.20 | | | | |
| 0.70 | 3.50 | 2.90 | | | | |
| 0.80 | 4.00 | 3.70 | | | | |
| 0.90 | 4.50 | 4.60 | | | | |
| 1.00 | 5.00 | 5.60 | | | | |
| 1.10 | 5.50 | 6.70 | | | | |