

Quiz - Le 20

Name: _____

Tennis Ball Gun Lab

1. A team of students fires a tennis ball gun *horizontally* in a very long room. For an initial velocity v , the ball bounces a height h after it hits the ground. If the initial velocity is doubled, the ball will bounce a height of: (assume the coefficient of restitution is constant)
a) $4h$ b) $2h$ c) $1.4h$ d) h e) $0.7h$ f) $0.5h$ g) $0.25h$ h) none of these

2. Some “creative” students later reorient the gun so that it is pointing nearly *vertical* in a very tall room. For an initial velocity v , the ball bounces a height h after it hits the ground. If the initial velocity is doubled, the ball will bounce a height of: (assume the coefficient of restitution is constant)
a) $4h$ b) $2h$ c) $1.4h$ d) h e) $0.7h$ f) $0.5h$ g) $0.25h$ h) none of these

3. Suppose the creative students have an even better idea: they find another ball with the same coefficient of restitution as the tennis ball but twice the mass. If this new ball is fired vertically with the same initial velocity v as in question 2, it will bounce a height of:
a) $4h$ b) $2h$ c) $1.4h$ d) h e) $0.7h$ f) $0.5h$ g) $0.25h$ h) none of these