| Question | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

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1. Question Details SerCP9 6.CQ.002. [1635704]

(a) If two objects collide and one is initially at rest, is it possible for both to be at rest after the collision?

○ Yes

○ No

Explain.

(b) If two objects collide and one is initially at rest, is it possible for only one to be at rest after the collision?

○ Yes

○ No

Explain.

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2. Question Details SerCP9 6.CQ.006. [1589010]

A skater is standing still on a frictionless ice rink. Her friend throws a Frisbee straight at her. In which of the following cases is the largest momentum transferred to the skater?

○ The skater catches the Frisbee momentarily, but then drops it vertically downward.

○ The skater catches the Frisbee, holds it momentarily, and throws it back to her friend.

○ The skater catches the Frisbee and holds onto it.

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3. Question Details SerCP9 6.P.037.soln. [1588446]

In a Broadway performance, an 85.0-kg actor swings from a 3.90-m-long cable that is horizontal when he starts. At the bottom of his arc, he picks up his 55.0-kg costar in an inelastic collision. What maximum height do they reach after their upward swing?

[   ] m

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4. Question Details SerCP9 6.P.039. [1589064]

A 0.032-kg bullet is fired vertically at 225 m/s into a 0.15-kg baseball that is initially at rest. How high does the combined bullet and baseball rise after the collision, assuming the bullet embeds itself in the ball?

[   ] m

5. Question Details

A bullet of mass m = 8.00 g is fired into a block of mass M = 230 g that is initially at rest at the edge of a table of height h = 1.00 m (see figure below). The bullet remains in the block, and after the impact the block lands d = 2.30 m from the bottom of the table. Determine the initial speed of the bullet.

[   ] m/s

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6. Question Details
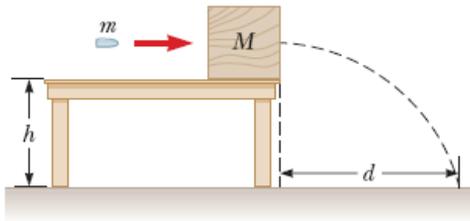
A billiard ball rolling across a table at 1.50 m/s makes a head-on elastic collision with an identical ball. Find the speed of each ball after the collision when each of the following occurs.

(a) The second ball is initially at rest.
first ball [   ] m/s
second ball [   ] m/s

(b) The second ball is moving toward the first at a speed of 1.10 m/s.
first ball [   ] m/s
second ball [   ] m/s

(c) The second ball is moving away from the first at a speed of 1.00 m/s.
first ball [   ] m/s
second ball [   ] m/s

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7. Question Details

Consider a frictionless track as shown in the figure below. A block of mass m_1 = 4.00 kg is released from Ⓐ. It makes a head-on elastic collision at Ⓑ with a block of mass m_2 = 12.0 kg that is initially at rest. Calculate the maximum height to which m_1 rises after the collision.

[   ] m
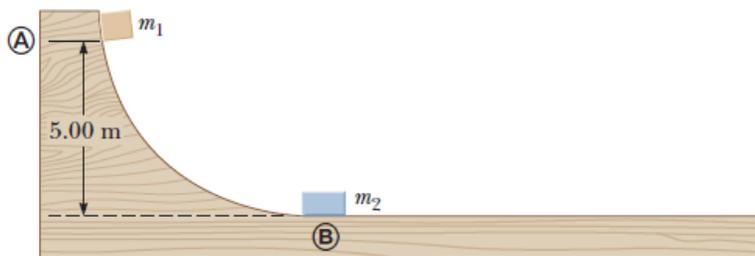
Two shuffleboard disks of equal mass, one orange and the other green, are involved in a perfectly elastic glancing collision. The green disk is initially at rest and is struck by the orange disk moving initially to the right at $\vec{v}_{oi}$ = 3.25 m/s as in Figure (a) shown below. After the collision, the orange disk moves in a direction that makes an angle of θ = 40.0° with the horizontal axis while the green disk makes an angle of ϕ = 50.0° with this axis as in figure (b). Determine the speed of each disk after the collision.

v_{of} = [   ] m/s
v_{gf} = [   ] m/s
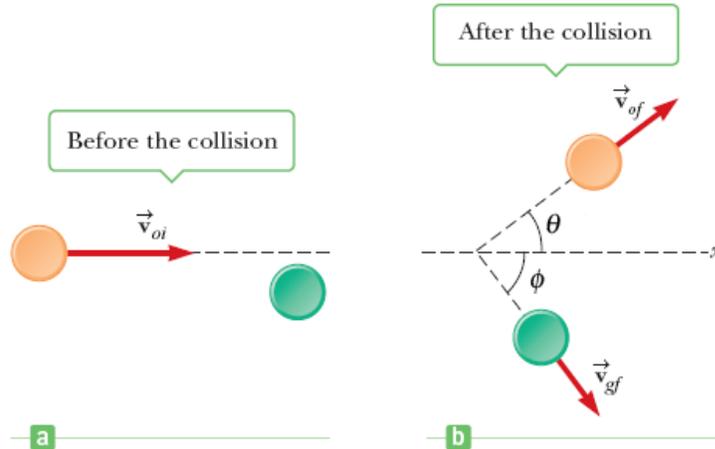
Two automobiles of equal mass approach an intersection. One vehicle is traveling with velocity 11.7 m/s toward the east, and the other is traveling north with velocity v_{2i}. Neither driver sees the other. The vehicles collide in the intersection and stick together, leaving parallel skid marks at an angle of 49.0° north of east. The speed limit for both roads is 35 mi/h, and the driver of the northward-moving vehicle claims he was within the limit when the collision occurred. Is he telling the truth?

○ Yes

○ No

What was the initial speed of the northward-moving vehicle?
[   ] mi/h

Assignment Details

Name (AID): **Homework #6 - Due Monday Oct. 21, 2013**   **Feedback Settings**
Submissions Allowed: **5**   Before due date
Category: **Homework**   Question Score
Code: Assignment Score
Locked: **No**   Publish Essay Scores
Author: **Segre, Phil** (psegre@physics.emory.edu)   Question Part Score
Last Saved: Mark
Permission: **Protected**   Add Practice Button
Randomization: **Person**   Help/Hints
Which graded: **Last**   Response
                                                                 Save Work
                                                                 After due date
                                                                 Question Score
                                                                 Assignment Score
                                                                 Publish Essay Scores
                                                                 Key
                                                                 Question Part Score

Solution
Mark
Add Practice Button
Help/Hints
Response