

Block A collides with Block B. After the collisions the two blocks stick together. Which of the following is true?

- 1) You **do not** need any knowledge of the forces between the blocks to find their velocity after the collision.
- 2) You could use knowledge of the time the collision takes to learn about the force acting between the blocks.
- 3) You **do** need knowledge of the forces between the blocks to find the work done on each block during the collision.
- 4) Both (1) and (2) are correct.
- 5) Both (1) and (3) are correct.
- 6) Both (2) and (3) are correct.
- 7) All three of (1), (2), and (3) are correct.

Suppose a golf ball is hurled at a heavy bowling ball initially at rest and bounces elastically from the bowling ball. After the collision, what is true about the *magnitudes* of momentum and kinetic energy:

- 1) The golf ball has the greater momentum and the greater kinetic energy.
- 2) The bowling ball has the greater momentum and the greater kinetic energy.
- 3) The golf ball has the greater momentum but has the smaller kinetic energy.
- 4) The bowling ball has the greater momentum but has the smaller kinetic energy.
- 5) Both balls have the same momentum but different kinetic energy.
- 6) Both balls have the same kinetic energy but different momenta.
- 7) Both balls have the same momentum and the same kinetic energy.
- 8) The answer depends on the ratio of masses.