**Key Concept Builder (page 54)**

1. S 2. B 3. D 4. B 5. S 6. S 7. B 8. D 9. B 10. B

**Key Concept Builder (page 55)**

1. no check mark 2. check mark 3. check mark 4. check mark 5. check mark 6. no check mark 7. check mark 8. check mark 9. no check mark 10. check mark

**Key Concept Builder (page 56)**

1. 5 m/s2 2. 2 kg 3. 30 N

**Key Concept Builder (page 57)**

1. centripetal force 2. the string 3. because it is changing direction, which is a change of velocity 4. toward the person’s hand 5. B 6. inertia 7. Gravity

**Key Concept Builder (page 73)**

1. equal, opposite 2. force pair 3. action 4. reaction 5. momentum 6. mass, velocity, conserved 7. elastic 8. inelastic

**Key Concept Builder (page 74)**

1. A, R 2. R, A 3. A, R 4. R, A 5. R, A 6. A, R 7. A, R 8. A, R 9. R, A 10. A, R

**Key Concept Builder (page 75)**

1. The forces do not cancel each other because although they are equal, they act on different objects. One force, the action force, is the pull that Antonio exerts on the handle of the wagon. The other force, the reaction force, is the pull of the handle on Antonio’s hand. There is a net forward force on the wagon, so it moves forward.
2. Possible answer: If someone were behind the wagon pulling on it with the same force that Antonio is exerting on the front of the wagon, those forces would cancel each other, resulting in zero net force. As a result, the wagon would not move.

**Key Concept Builder (page 76)**

1. 5.8 kg · m/s

2. The ship would have more momentum because it has much more mass than the car.

3. The collision of the billiard balls is elastic because the balls bounce apart after striking each other. The collision of the football players is inelastic because the players do not bounce apart after colliding.

4. friction