

Concept Review

Section: Newton's Third Law

1. **Identify** which of Newton's three laws of motion specifically applies in each of the following situations:

- _____ a. You feel a force against the sole of your foot as you take a step forward.
- _____ b. A meteor moving in a straight path changes direction when it flies by Earth.
- _____ c. A full grocery cart that is pushed starts moving and increases speed, but the same push increases its speed even more when the cart is empty.
- _____ d. A skateboard moves faster in the same direction it is pushed.

2. **Apply** Newton's third law of motion to explain how two billiard balls moving toward each other at the same speed collide and move away from each other at the same speed as before.

3. **Apply** the concept of momentum to compare the mass and velocity of a slow-moving train and of a high-speed bullet.

4. **Indicate** which of the following has greater momentum: a 500 kg car moving at 64 km/h, a 250 kg cart moving at 128 km/h, or a 1000 kg truck moving at 32 km/h. Justify your answer.

5. **Infer** what you can say about the velocity of a car that is moving with a constant momentum.

