

## Astronomy Ranking Task: Kinematics

### Exercise #2

**Description:** Let “up” (away from the Earth’s surface) be in the positive direction and “down” (towards the center of Earth) be in the negative direction. A person tosses a ball straight up into the air. Three instants in time are labeled A, B, and C below.

- A. Just after the ball leaves the person’s hand.
- B. At the very top of the ball’s motion (its maximum height).
- C. Just before the ball hits the ground.

**A. Ranking instructions:** Rank the amounts of acceleration the ball experiences during each of the labeled instances.

Ranking Order: Greatest 1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ Least

Or, the ball has zero acceleration during each of the labeled instances. \_\_\_\_\_ (indicate with a check mark)

Or, the ball has the same amount of nonzero acceleration during each of the labeled instances. \_\_\_\_\_ (indicate with a check mark)

**Carefully explain** your reasoning for ranking this way:

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**B. Ranking instructions:** Rank the speeds of the ball during each of the labeled instances. (Ignore the signs on the speeds, e.g. directions.)

Ranking Order: Fastest 1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ Slowest

Or, the ball has the same speed at each of the labeled instances. \_\_\_\_\_ (indicate with a check mark)

**Carefully explain** your reasoning for ranking this way:

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