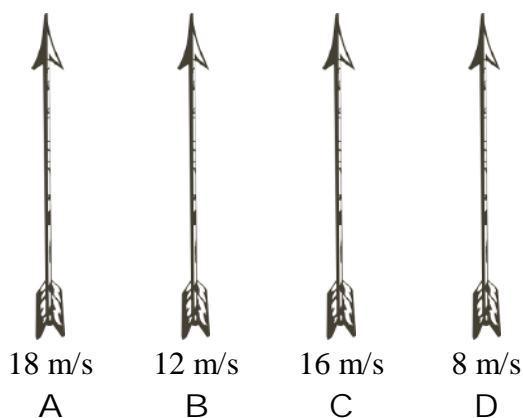


Astronomy Ranking Task: Kinematics

Exercise #1

Description: The figure below shows four identical arrows that have been shot straight up into the air with the velocities indicated. Assume air resistance is negligible.



A. Ranking instructions: Rank the maximum heights reached by the arrows.

Ranking Order: Highest 1 _____ 2 _____ 3 _____ 4 _____ Lowest

Or, all the arrows reach the same maximum height. _____ (indicate with a check mark)

Carefully explain your reasoning for ranking this way:

B. Ranking instructions: Rank the accelerations of the arrows at their maximum heights.

Ranking Order: Greatest 1 _____ 2 _____ 3 _____ 4 _____ Least

Or, all the arrows have the same nonzero acceleration. _____ (indicate with a check mark)

Or, all the arrows have zero acceleration at their maximum heights. _____ (indicate with a check mark)

Carefully explain your reasoning for ranking this way:
