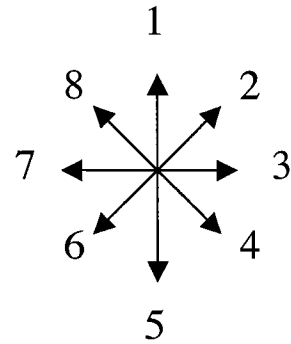


Sample Questions from the Mechanics Baseline Test (MBT) (Hestenes & Welles, 1992)

The diagram depicts a block sliding along a frictionless ramp. The eight numbered arrows in the diagram represent directions to be referred to when answering the questions.



4. The direction of the acceleration of the block, when in position I, is best represented by which of the arrows in the diagram?

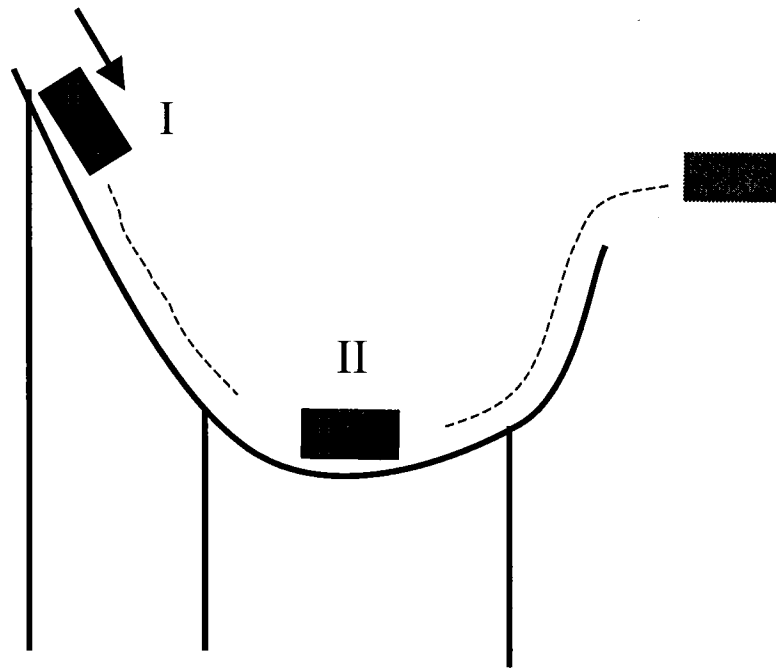
- A. 1
- B. 2
- C. 4
- D. 5
- E. None of the arrows; the acceleration is zero.

5. The direction of the acceleration of the block, when in position II, is best represented by which of the arrows in the diagram?

- A. 1
- B. 3
- C. 5
- D. 7
- E. None of the arrows; the acceleration is zero.

6. The direction of the acceleration of the block, (after leaving the ramp) at position III, is best represented by which of the arrows in the diagram?

- A. 2
- B. 3
- C. 5
- D. 6
- E. None of the arrows; the acceleration is zero.



Two pucks are on a frictionless table. Puck II is four times as massive as puck I. Starting from rest, the pucks are pushed across the table by two equal forces.

20. Which puck will have the greater kinetic energy upon reaching the finish line?

- A. I
- B. II
- C. They both have the same amount.
- D. Too little information to answer

21. Which puck will reach the finish line first?

- A. I
- B. II
- C. They will reach it at the same time.
- D. Too little information to answer

22. Which will have the greater momentum at the finish line?

- A. I
- B. II
- C. They will reach it at the same time.
- D. Too little information to answer

