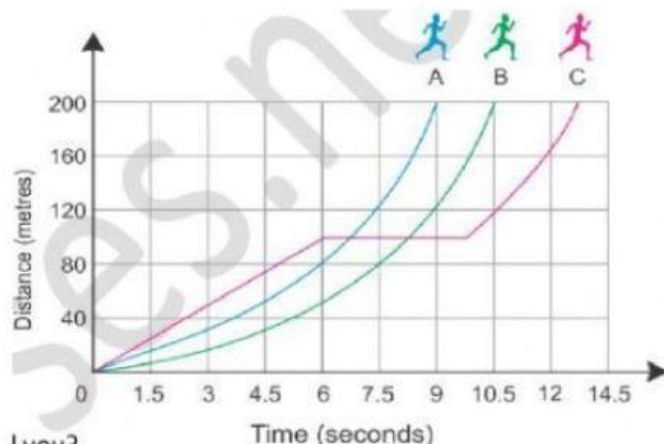


FSI Motion Unit Assessment Review

The graph shows the motion of three runners running a race.



Use the following graph to answer questions 1 through 3.

1. Which runner had the greatest acceleration from 0 to 6 seconds?

- A. Runner A B. Runner B C. Runner C D. None of the runners

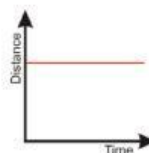
2. Which runner had the greatest acceleration during the race?

- A. Runner A B. Runner B C. Runner C D. None of the runners

3. How can you tell which runner had the greatest acceleration during the race?

- A. They had the steepest curved slope which demonstrates the greatest acceleration.
B. They had the steepest constant slope which demonstrates the greatest acceleration.
C. They had the lowest curved slope which demonstrates the greatest acceleration.
D. They had the lowest constant slope which demonstrates the greatest acceleration.

4. What does a straight line mean on a distance vs. time graph?

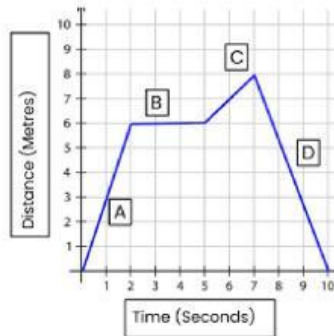


- A. An object is moving with constant speed. B. An object is slowing down at a constant speed.
C. An object is accelerating faster and faster. D. An object is not moving.

5. What X and Y axis units are used on a positive and negative acceleration graph?

- A. X = Time, Y = Distance
- B. X = Time, Y = Speed
- C. X = Speed, Y = Time
- D. X = Speed, Y = Time

6. The graph shows the distance an object travels over time.



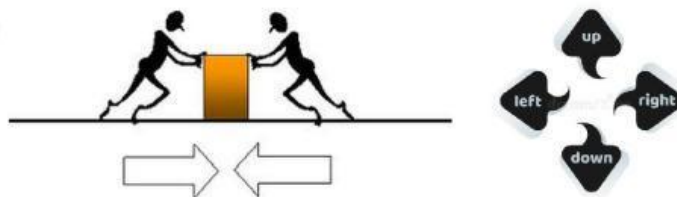
What is the object doing at point A?

- A. Constant decreasing speed
- B. No motion
- C. Constant increasing fast speed
- D. The object is moving in circles.

What is the object doing At point B?

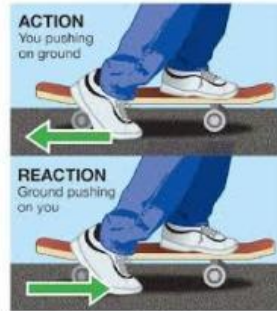
- A. Constant decreasing speed
- B. No motion
- C. Constant increasing fast speed
- D. The object is moving in circles.

7. If two people are pushing on a box with the same amount of force, what force would it take to move the box to the left?



- A. The forces must be unbalanced with the force from the left being greater than force from the right.
- B. The forces must be unbalanced with the force from the right being greater than force from the left.
- C. The forces must be balanced with the force from the left being greater than the force from the right.
- D. The forces must be balanced with the force from the right being greater than the force from the left.

8. A skateboarder applies a force to the ground pushing backward and the ground applies an equal and opposite reaction force pushing the skateboarder forward. This is an example of which Newton's Law?



A. Newton's 1st law

B. Newton's 2nd law

C. Newton's 3rd law

9. An object with less mass will require _____ force to move it, while an object with more mass will require _____ force to move it.

A. less, less

B. less, more

C. more, more

D. more, less

The more a spring scale is pulled down the more mass/newtons an object has.



10. Which object has more mass according to your knowledge of spring scales?

Object A = 7 Newtons, Object B = 4 Newtons

A. Object A

B. Object B

C. Neither object

D. Both objects

11. Which one is harder to push, a full shopping cart or an empty shopping cart? Explain why.

- A. The groceries in the full shopping cart decreased the mass of the cart making it harder to push.
- B. The empty shopping cart was empty which increased the amount of gravity on it making it harder to push.
- C. The empty shopping cart was empty which increased the amount of friction it had with the ground making it harder to push.
- D. The groceries in the full shopping cart increased the mass of the cart making it harder to push.

12. The law of inertia states...

- A. The more mass an object has the more force is required to accelerate the object.
- B. For every action there is an equal and opposite reaction.
- C. An object at rest stays at rest and an object in motion will remain in motion unless acted upon by an outside force.
- D. The less mass an object has the more force is required to accelerate the object.

13. Two masses are measured on a spring scale.

Mass 1 = 2 Newtons / 200 grams

Mass 2 = 5 Newtons / 500 grams

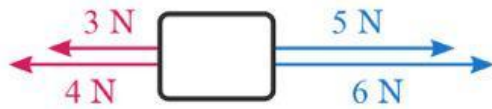
Which claim is correct when comparing the two masses?

- A. Because mass 2 has more mass than mass 1, mass 2 will require more force to accelerate.
- B. Because mass 1 has more mass than mass 2, mass 1 will require less force to accelerate.
- C. Because mass 2 has more mass than mass 1, mass 2 will require less force to accelerate.
- D. Because mass 1 has less mass than mass 2, mass 2 will require less force to accelerate.

14. The more mass an object has is directly proportional to the amount of force needed to move that object.

- A. True
- B. False

15. In which direction will the box move?



- A. 8N to the right B. 11N to the left C. 4N to the right D. 7N to the left

What would make the box above stop moving?

- A. adding 8N of pulling force to the right B. Adding 4N of pulling force to the left
C. subtracting 7N of pulling force to the right D. Subtracting 2N of pulling force to the right

16. In which direction will the box move?

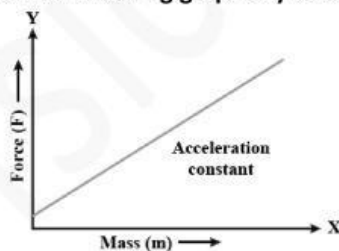


- A. 3N to the left B. 3N to the right C. 0N to the right D. The box will not move

17. What will make the box move in questions 16?

- A. 4N to the left and 4N to the right B. 4N to the left and 5N to the right
C. Both forces increase to 8N D. Both forces decrease to 2N

18. What does the following graph say about force and mass?



- A. As mass increases force increases, and they are directly proportional to each other.
B. As mass increases force decreases, and they are inversely proportional to each other.
C. As mass increases force increases, and they are inversely proportional to each other.
D. As mass increases force decreases, and they are directly proportional to each other.