Motion in One Dimension

Section Quiz: Acceleration

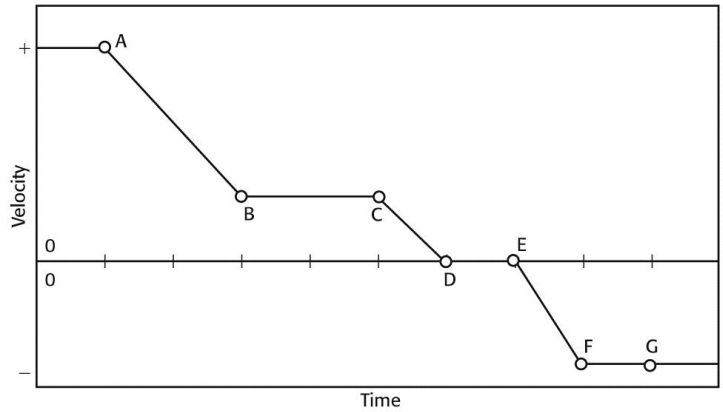
Write the letter of the correct answer in the space provided.

_____ 1. The average acceleration is the ratio of which of the following quantities?
   a. Δd:Δv
   b. d:Δt
   c. v:Δv
   d. Δv:Δt

_____ 2. The speed of a car will increase if the car's
   a. initial velocity is positive and its acceleration is zero.
   b. initial velocity is positive and its acceleration is positive.
   c. initial velocity is positive and its acceleration is negative.
   d. initial velocity is negative and its acceleration is positive.

_____ 3. For a scooter with a negative acceleration, which of the following statements is always true?
   a. The scooter is losing speed.
   b. The final velocity of the scooter will be negative.
   c. The initial velocity of the scooter will be greater than its final velocity.
   d. The scooter will have a negative displacement.

Questions 4–9 refer to the following velocity-time graph of a jogger. The positive direction is away from the jogger's home.



_____ 4. The jogger is at rest during which interval?
   a. AB
   b. BC
   c. DE
   d. EF

_____ 5. During which of the following intervals does the jogger have a constant positive velocity?
a. BC
b. CD
c. DE
d. FG

_____ 6. During which interval is the magnitude of the jogger's acceleration the greatest?
a. AB
b. BC
c. DE
d. EF

_____ 7. During which of the following intervals is the speed of the jogger decreasing?
a. AB only
b. AB and CD
c. AB, CD, and EF
d. EF only

_____ 8. During which of the following intervals is the jogger's motion toward home?
a. CD and EF
b. DE only
c. EF only
d. EF and FG

9. Rank the four displacements for the time intervals CD, DE, EF, and FG in decreasing order. Explain your answer.

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10. A cat walking at 0.25 m/s sees a mouse and accelerates uniformly at 0.40 m/s^2 for 3.0 s. What is the cat's displacement during this time?