

Motion Graph Practice Questions

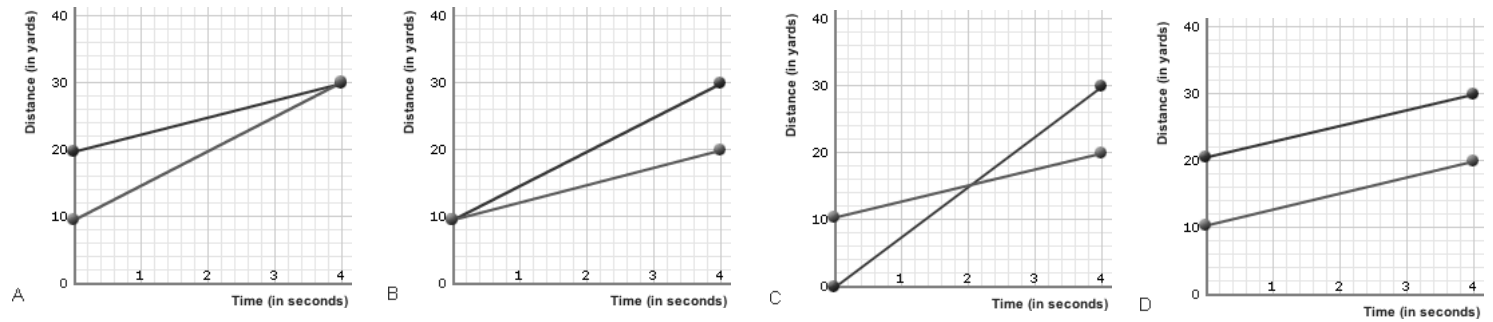
From the list below, choose the term that best completes each sentence. Write your answers on the line provided.

Motion
Reference point

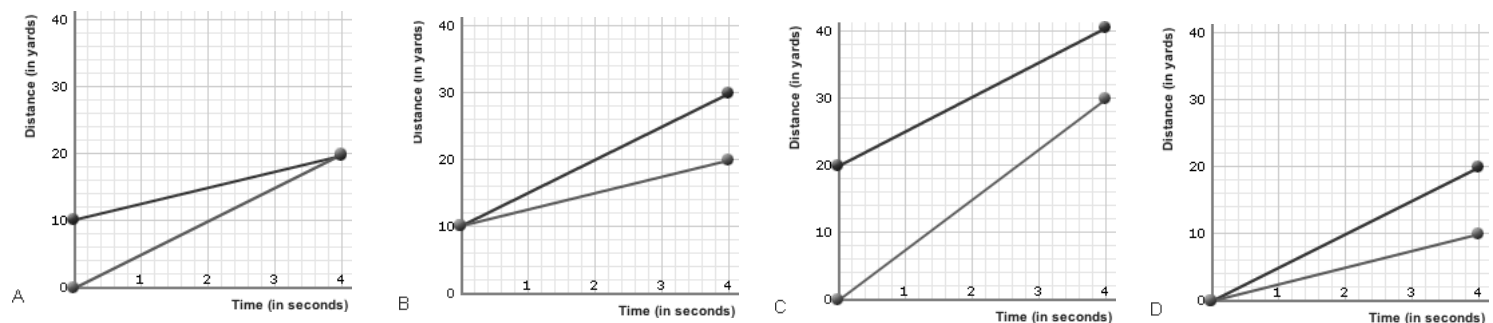
Velocity
Speed

1. An object is in _____ when its distance from a(n) _____ is changing.
2. Speed in a given direction is called _____
3. _____ can be calculated if you know the distance that an object travels in one unit of time.

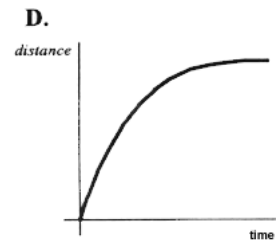
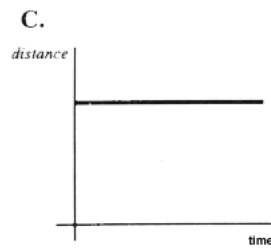
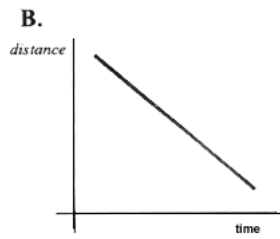
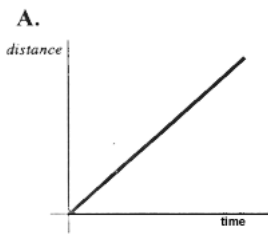
4. Which of the following graphs shows runners moving at the same speed? Explain/show your work.



5. Which graph below shows that one of the runners started 10 yards further ahead of the other? Defend your answer.



6. Match the descriptions below with the graphs. Be sure to explain your answers.



Descriptions:

1. The car is stopped.
2. The car is traveling at a constant speed.
3. The speed of the car is decreasing.
4. The car is coming back.

Graph A matches description _____ because _____

Graph B matches description _____ because _____

Graph C matches description _____ because _____

Graph D matches description _____ because _____

Use the following paragraph and graph to answer questions 7-10. Write your answers in the blanks below each question. Remember to include units and show your work.

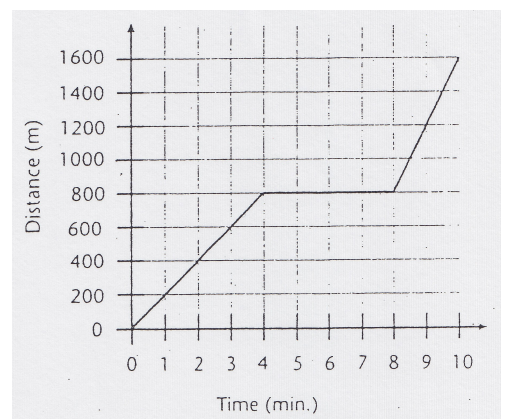
On Saturday, Ashley rode her bicycle to visit Maria. Maria's house is directly east of Ashley's. The graph shows how far Ashley was from her house after each minute of her trip.

7. Ashley rode at a constant speed for the first 4 minutes of her trip. What was her constant speed?

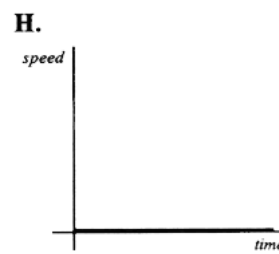
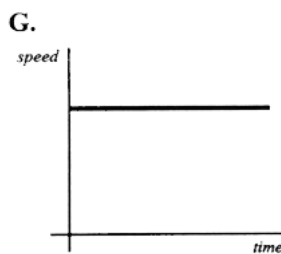
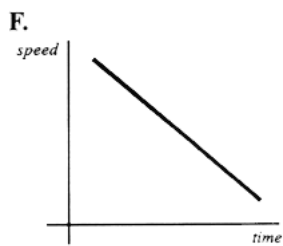
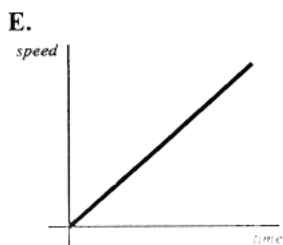
8. What was her average speed for the entire trip?

9. What was her average velocity for the entire trip?

10. Ashley stopped to talk with another friend during her trip. How far was she from her house when she stopped?



11. Match the descriptions below with the graphs. Be sure to explain your answers.



Descriptions:

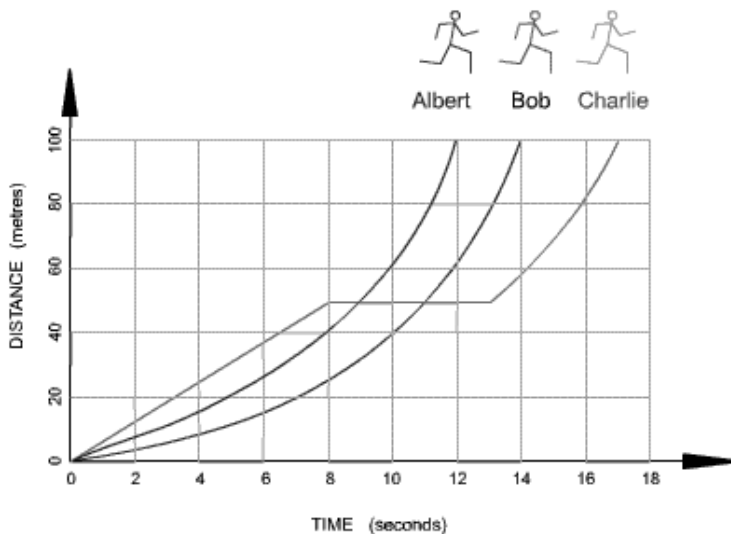
- | | |
|--|----------------------------|
| 5. The car is stopped. | 7. The car is accelerating |
| 6. The car is traveling at a constant speed. | 8. The car is slowing down |

Graph E matches description _____ because _____

Graph F matches description _____ because _____

Graph G matches description _____ because _____

Graph H matches description _____ because _____

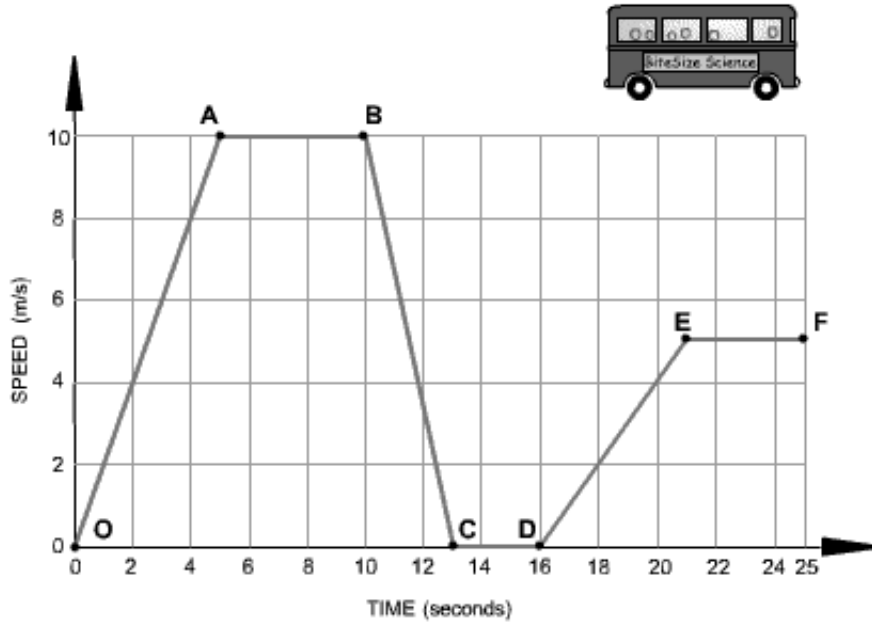


12. Which runner won the race? Explain your answer.

13. Which runner stopped for a rest? How long was the stop?

14. How long did Bob take to complete the race? Explain your answer.

15. Calculate Albert's average speed.



16. Choose the correct words from the following list to describe the motion during each segment of the journey to fill in the blanks.

- Accelerating
- Decelerating
- Constant speed
- At rest

Segment O-A The bus is _____. Its speed changes from 0 to 10 m/s in 5 seconds.

Segment A-B The bus is moving at a _____ of 10 m/s for 5 seconds.

Segment B-C The bus is _____. It is slowing down from 10 m/s to rest in 3 seconds.

Segment C-D The bus is _____. It has stopped.

Segment D-E The bus is _____. It is gradually increasing in speed