

Speed, Velocity & Acceleration Quiz

Name: _____

S8P3a. Distinguish between velocity and acceleration.

Date: _____

Helpful equations: $v = \Delta d / \Delta t$ $a = \Delta v / \Delta t$ or $a = (v_f - v_i) / \Delta t$

Class: _____

1. What is the difference between velocity and speed?

2. a. What are the standard metric units for speed and velocity? _____ Provide another acceptable unit: _____

b. What are the standard metric units for acceleration? _____ Provide another acceptable unit: _____

3. There are **three** ways in which an object can accelerate. List them below

1. _____ 2. _____ 3. _____

Solve the following problems. Work: 1 point Correct Answer: 1 point Correct Units: 1 point

4. A runner jogged 2000 m north. Is this a displacement or distance? (Circle One) If it takes 100 seconds to complete this jog, calculate the runner's **velocity**.

5. Calculate the distance a cyclist would travel in 360 minutes at an average speed of 10 m/s to the southwest.

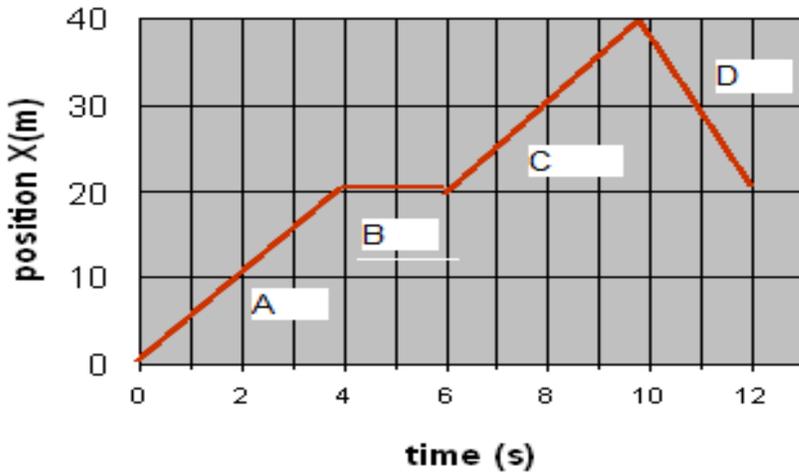
6. A sprinter ran the 100 meter dash at an average velocity of 8 m/s towards the finish line. How long did it take the sprinter to finish the race?

7. A cheetah sped up to 30 m/s from 20 m/s in 4 seconds. What was the acceleration of the cheetah?

8. In 5 seconds, a marathon runner increased her velocity by 2 m/s for the final stretch of the race. What was the acceleration of the runner?

9. What is the difference between displacement and distance?

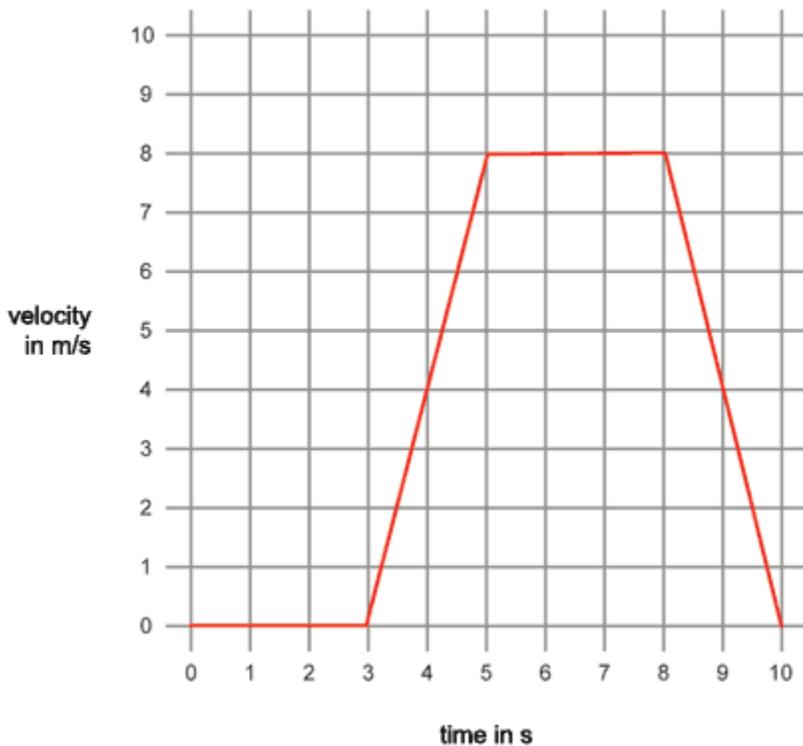
position vs time



The graph to the left describes a person running on a straight track.

10. How far did the runner move during section A?
11. How much time did it take the runner to move this far in section A?
12. Calculate the velocity of the runner using the numbers from above (assume the direction is north).

13. Describe what the runner did during section D of the track.
 Which direction did they move? _____
 How far did they run? _____
 How long did it take them? _____



Use the graph to the left to answer the following questions.

14. What was the runner doing from 0-3 seconds?
15. What was happening to the runner's velocity from 3-5 seconds?
16. Was the runner accelerating from 3-5 seconds?
 Positive Negative Neither
17. What velocity did the runner have from 5-8 seconds?
18. Was the runner accelerating from 5-8 seconds?
 Positive Negative Neither
19. What was happening to the runner's velocity from 8 to 10 seconds?
20. Was the runner accelerating from 8 to 10 seconds?
 Positive Negative Neither

Bonus: What was the total distance traveled by the runner? (Show all work for credit)