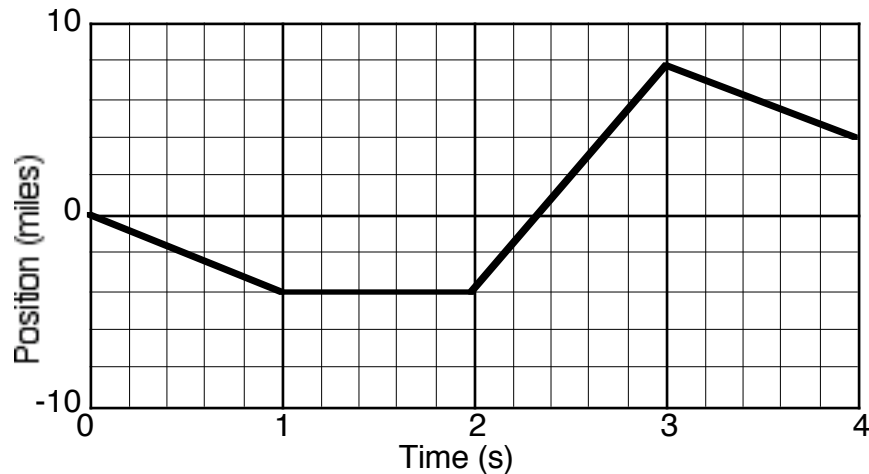


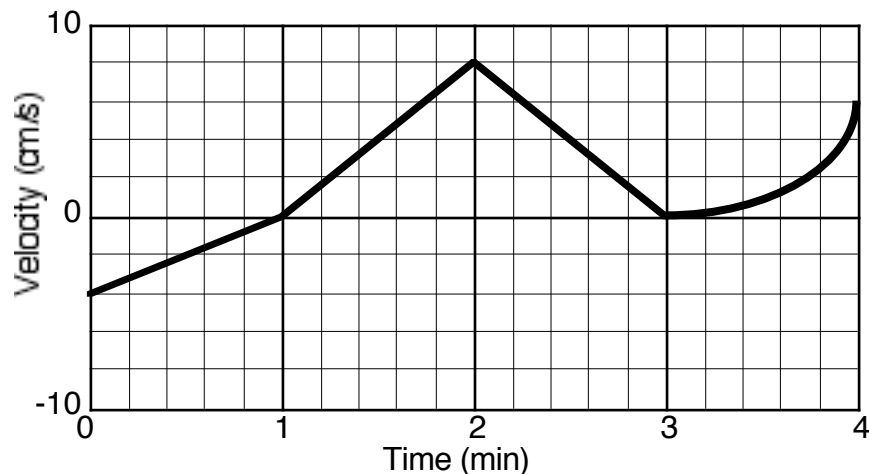
Kinematics by Graphical Means Mastery Assignment

This is due September, 25, by the end of the day.

Get help if you have trouble answering these questions. An “attempt” is not enough. On the due date or before, you will show this to me and keep it. I will give you credit and the right to take the mastery test. You will then look at the solutions in a notebook –not online. The mastery test will be given on September 30 during 8th period. These problems do not need to go into your bound solutions book with your classwork and homework problems. You are allowed to work with anyone else you wish to work with. Working with a friend who did well on the test is a GREAT IDEA.



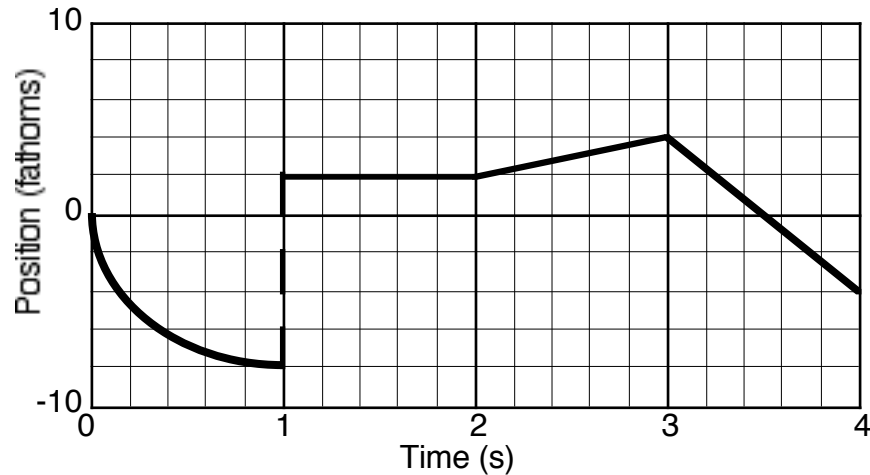
1. What is the instantaneous velocity at 2.5 s?
2. Which single second time interval show a positive displacement?
3. What is the displacement from 1 to 2 seconds?
4. Which single second time interval shows an acceleration -positive or negative?



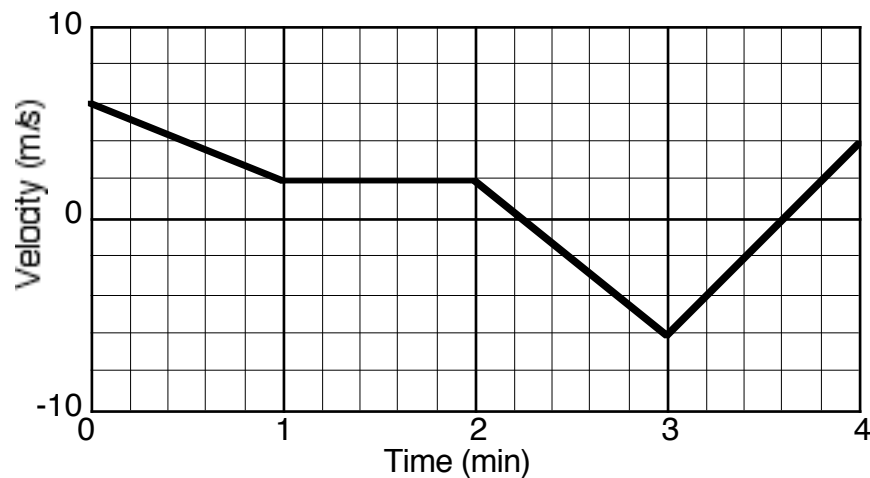
5. Which single second time interval(s) show a negative velocity?
6. Which single second time interval(s) show a negative jerk?
7. Which single second time interval(s) show a positive jerk?
8. Which single second time interval(s) shows a positive velocity and a negative acceleration?

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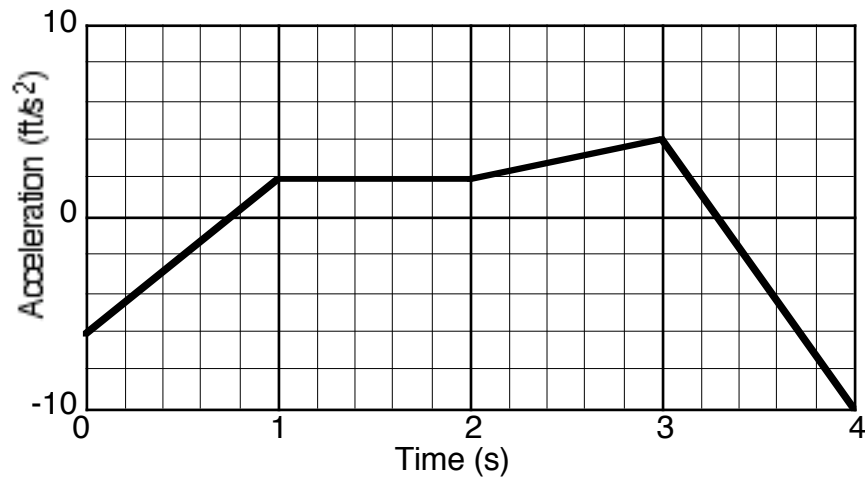
9. Which single second time interval(s) contains a positive acceleration?
10. Which single second time interval(s) contains a negative velocity?
11. What is the instantaneous velocity at 2.5 seconds?
12. Which single second time interval(s) contains a velocity of zero?
13. If this graph showed the motion of a person's movement, where is the person standing still?
14. If this graph showed the motion of a person's movement, where is the person walking "forwards?"



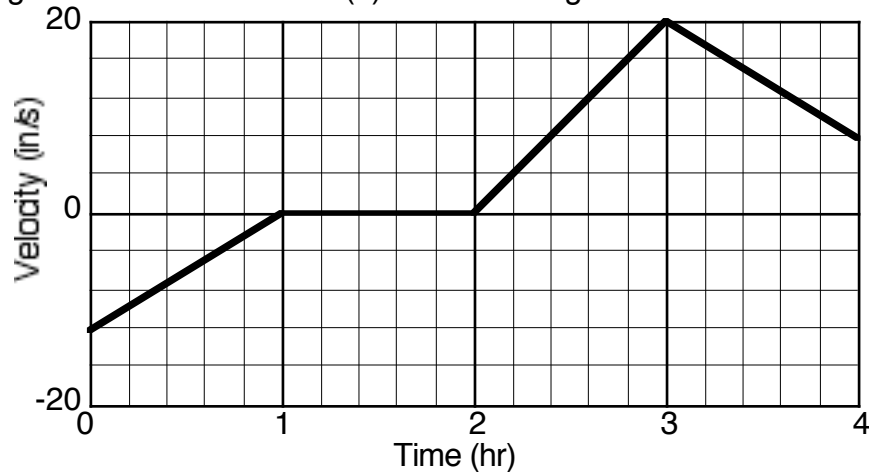
15. Which single second time interval(s) contains a positive acceleration?
16. Which single second time interval(s) contains a negative velocity?
17. What is the instantaneous velocity at 2.5 seconds?
18. Which single second time interval(s) contains a velocity of zero?

Kinematics by Graphical Means Mastery Assignment

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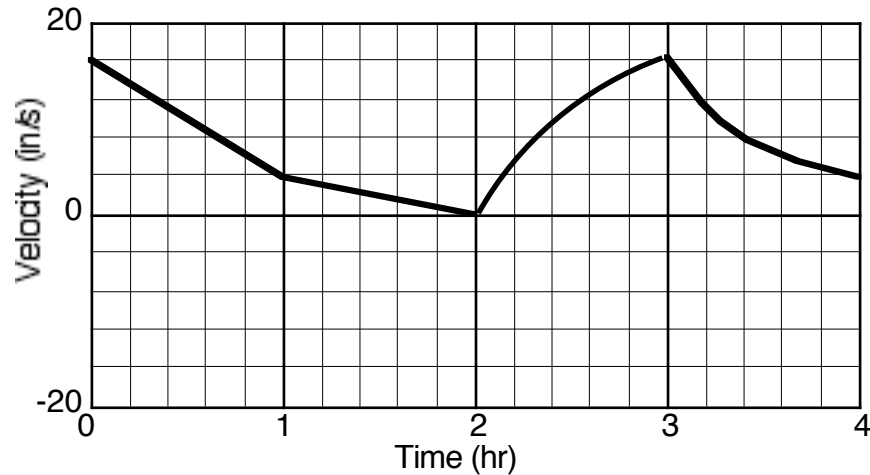
19. Which single second time interval(s) contain positive acceleration and a negative jerk somewhere in the time interval?
20. Which single second time interval(s) contain a jerk of zero?
21. Which single second time interval(s) contain a negative acceleration and a positive jerk?



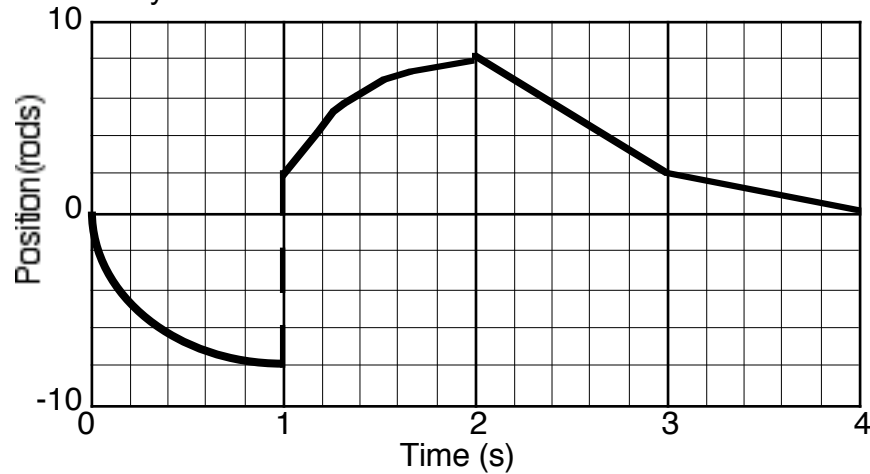
22. Which single second time interval(s) contains a positive acceleration and a negative velocity?
23. What is the velocity at 2.546 seconds?
24. Which single second time interval(s) contains a velocity of zero?
25. Which single second time interval(s) contains a negative acceleration?
26. What is the acceleration at 0.60?

Kinematics by Graphical Means Mastery Assignment

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27. What is the velocity at 1 second?
28. What is the acceleration at 2.6 seconds?
29. Which single second time interval(s) contains a positive velocity and a negative acceleration?
30. Where is the velocity zero?



31. What is the displacement from 2 to 4 seconds?
32. Where are the single second displacements negative?
33. What is the velocity at 3.6 seconds?
34. What is the velocity at 0.4 seconds?
35. If this graph represented the motion of a car, where is the car moving backwards the fastest?

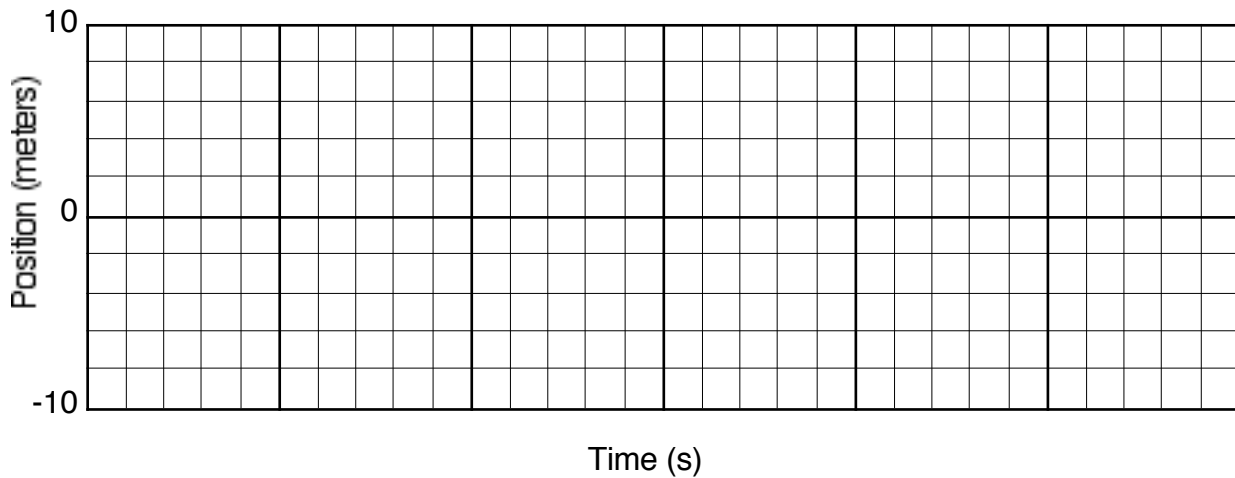
Kinematics by Graphical Means Mastery Assignment

This is due September, 25, by the end of the day.

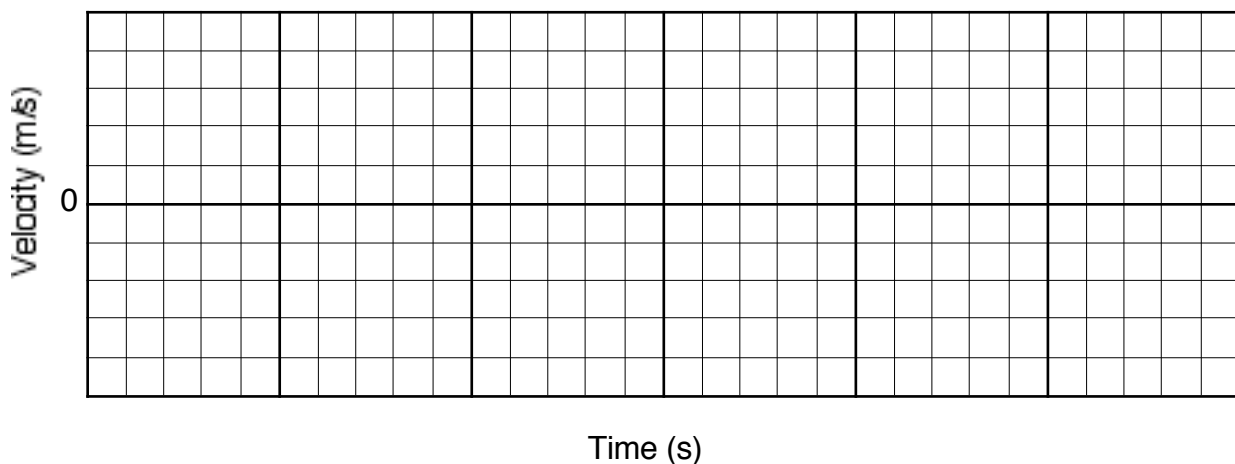
A dog is participating at an agility trial. While practicing the owner gives the dog a series of commands. Here the motion of the dog for the first 8 seconds of “play”

- The dog starts 4 meters in front of the owner.
- The dog slowly backs up and passes the own by going 2 m behind him. The owner stands at 0 m.
- The dog pauses for 1 second.
- The dog lunges very quickly
- Without hesitating the dog turns around and trots towards the owner faster and stops about 5 meters behind the owner.
- The dog now travels forward the fastest until she reaches 10 meters away from the owner.

36. On the graph space below draw a graph that shows the motion of the dog. Do not concern yourself with the time scale. Your graph is a relative graph. It does not need to have an accurate time scale.



37. From the graph you drew above, draw a corresponding velocity vs time graph.



Kinematics by Graphical Means Mastery Assignment

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What are the units for the slope on the graphs from the first 4 pages of this assignment?

38. Slope's units for the graph for 1-4:

39. Slope's units for the graph for 4-8:

40. Slope's units for the graph for 9-14:

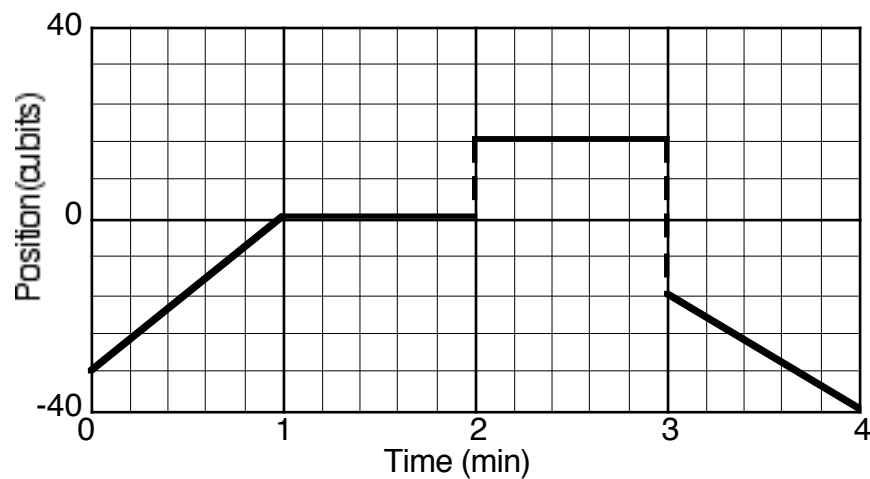
41. Slope's units for the graph for 15-18:

42. Slope's units for the graph for 19-21:

43. Slope's units for the graph for 22-26:

44. Slope's units for the graph for 27-30:

45. Slope's units for the graph for 31-35:



46. Which single second time interval contains a negative displacement?

47. Which single second time interval shows a velocity of zero?

48. Which single second time interval shows a displacement of zero?

49. Which single second time interval shows a positive velocity and zero displacement?

50. Why is there a vertical dotted line on this graph at 3 seconds?