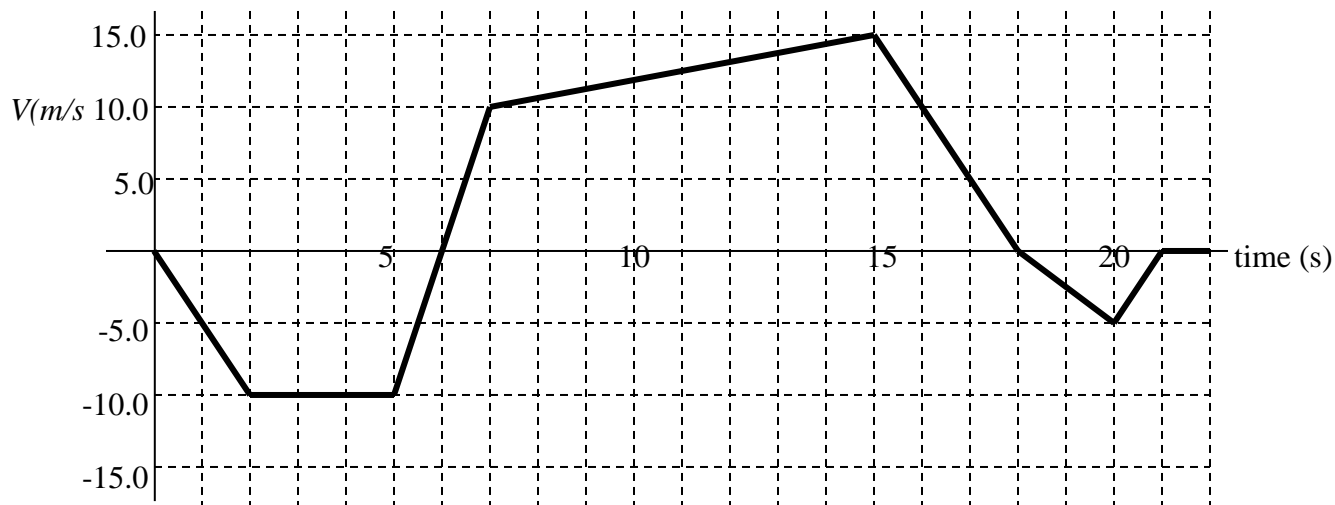


Name: _____ Date: _____

Motion Graphs & Kinematics Worksheet:

You must show all work for full credit. Please show all details of the calculations you perform for converting the motion graphs from one type to another.

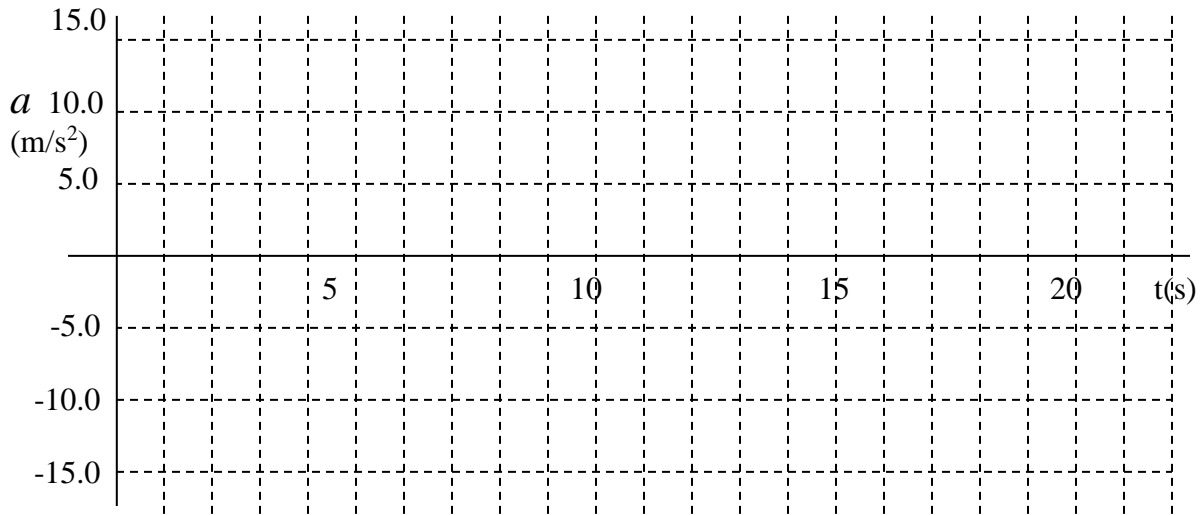
1. The graph below describes the motion of a fly that starts out flying left. Its initial position is 5.0m right.



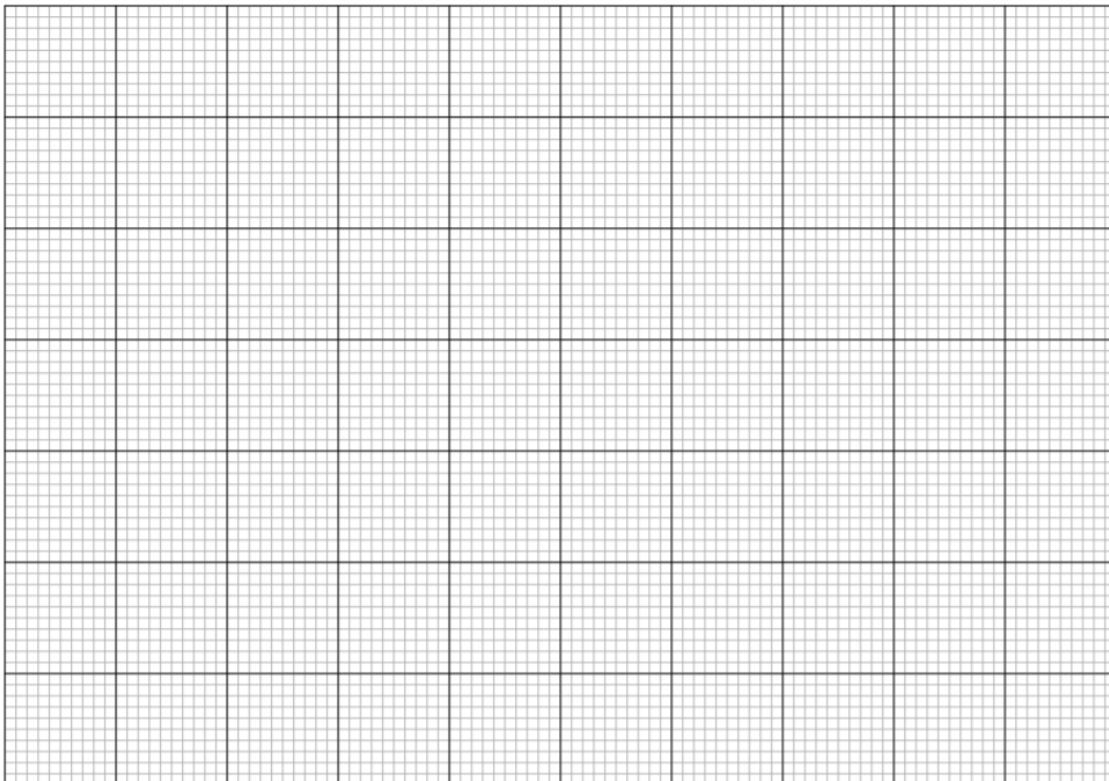
- Identify section(s) where the fly moves with constant velocity.
- Identify section(s) where the fly moves right slowing down.
- Identify section(s) where the fly moves left speeding up.
- When is the fly at rest?
- What is the average velocity of the fly between 0 and 15 seconds?
- What is the **distance** traveled by the fly in this time interval?
- What is the average **speed** of the fly in the same time interval?
- What is the average acceleration of the fly in this time interval?
- What is the total displacement of the fly from 0 to 22 seconds?
- Identify the times when the fly changes direction.

Name: _____ Date: _____

k. Draw an acceleration vs. time graph for the fly. Show the calculations below.

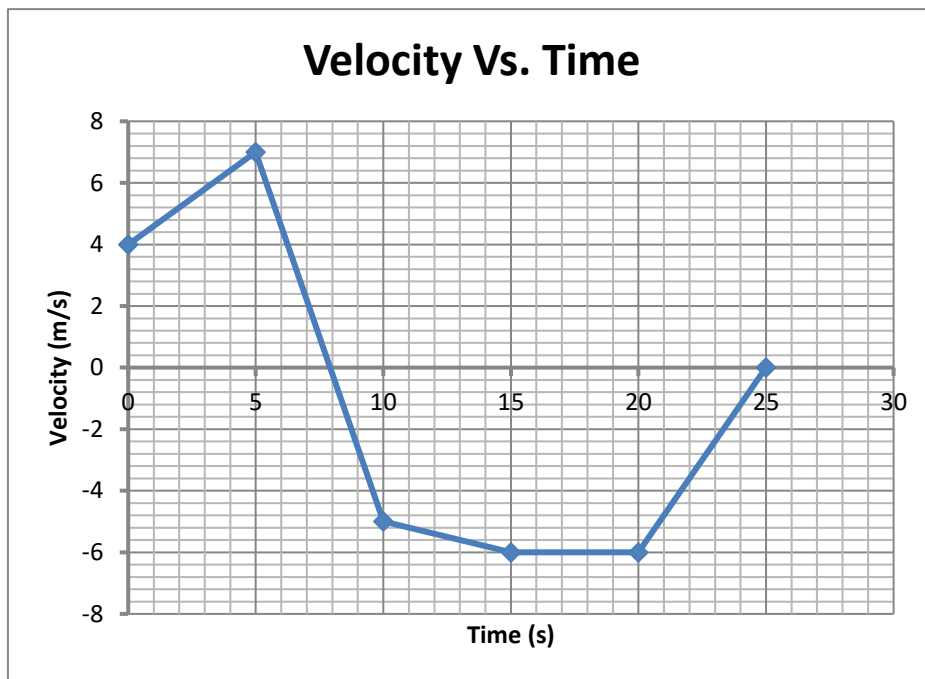


l. Draw a position vs. Time graphs for the motion of the fly. Show the calculations below and on the side:



Name: _____ Date: _____

2. The motion graph shown below was created by a toy train which starts out moving north. The train starts from a position of 2.0m north.



a. What was the displacement of the train in 25 seconds? (*39.5 m South*)

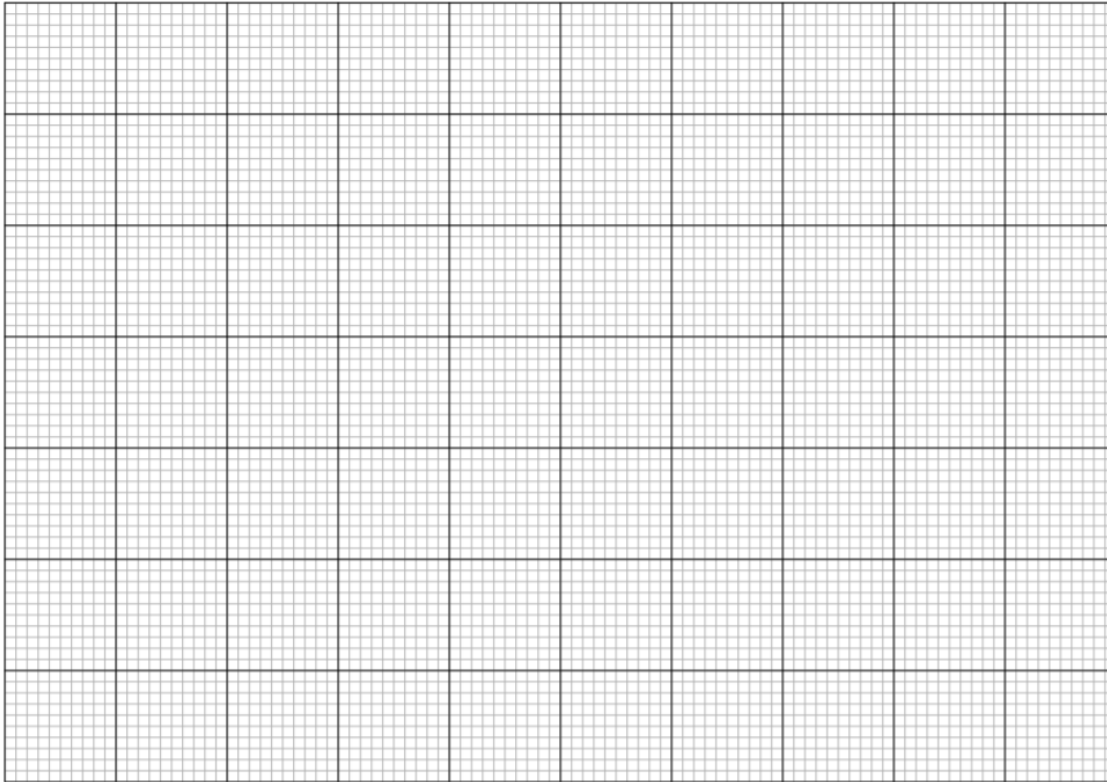
b. What is its average velocity? (*1.58 m/s South*)

c. What is its average speed? (*Distance = 115.5m, s = 4.62 m/s*)

d. What is the average acceleration of the train? (*0.16 m/s², south*)

Name: _____ Date: _____

e. Draw the acceleration vs. time graph for the toy train. Show your calculations on the side:

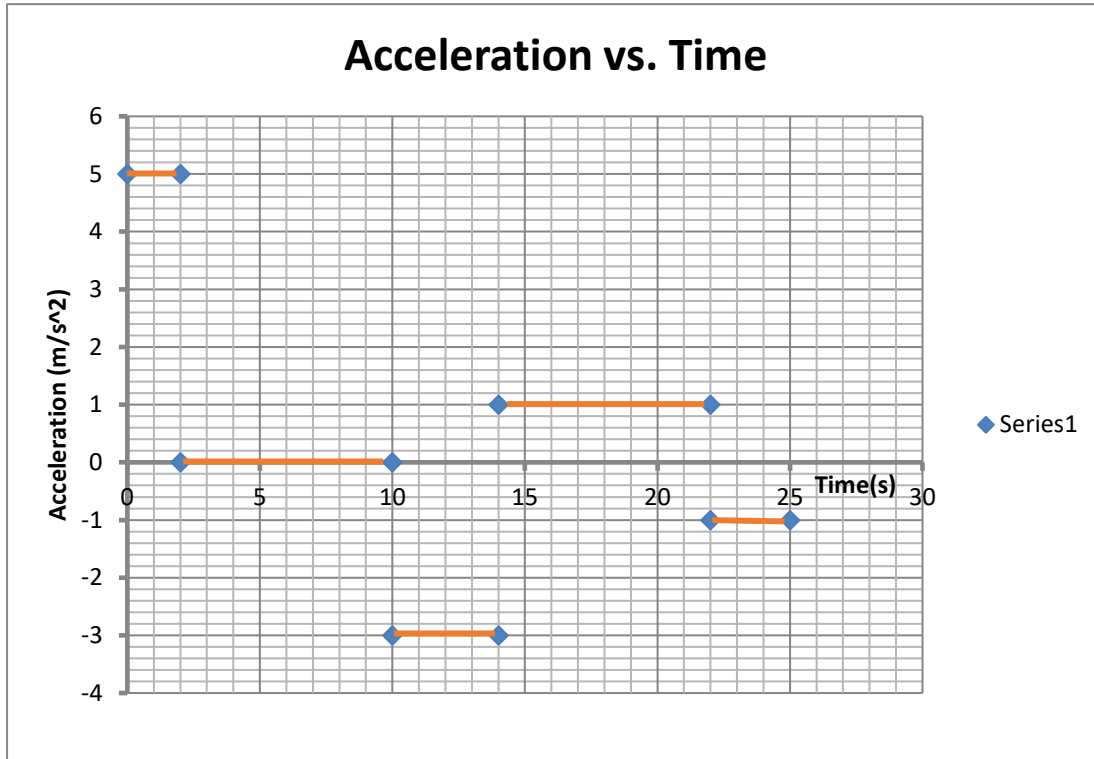


f. Draw the position vs. time graph for the toy train. Show your calculations below and on the side.

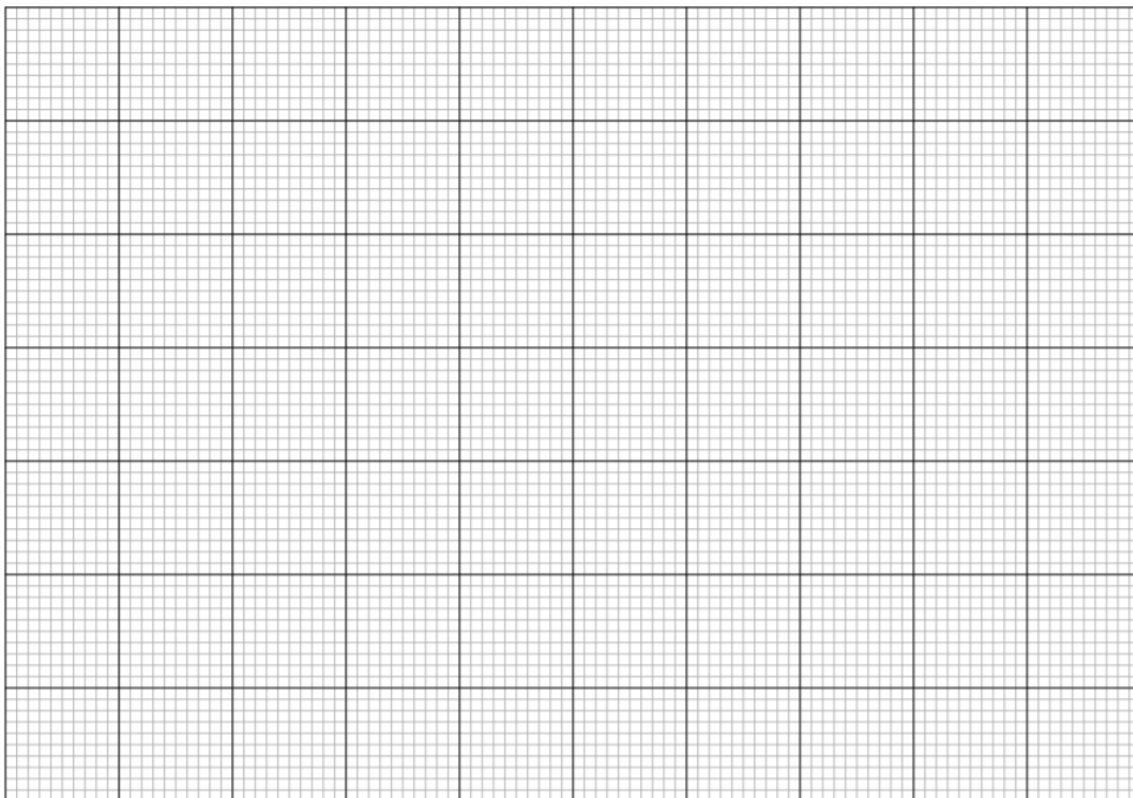


Name: _____ Date: _____

3. The graph shown below is created by an object that starts at rest from the origin. Choose the forward direction to be North.



a. Draw the velocity vs. time graph for the moving object. Show your calculations below and on the side.



Name: _____ Date: _____

b. What is the average acceleration of the moving object? (0.267 m/s^2)

c. Draw the position vs. time graph for the moving object. Show your calculations below.

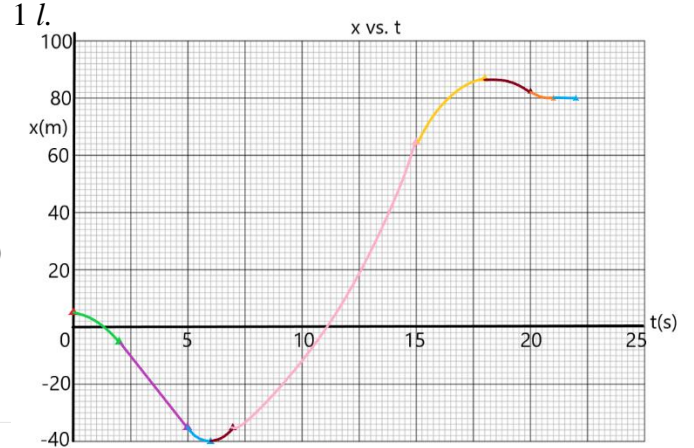
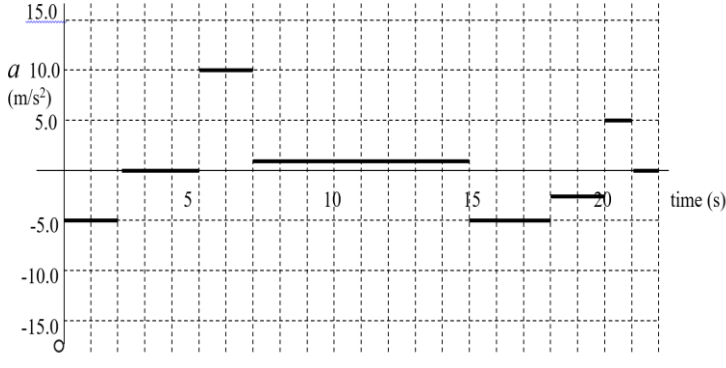


Name: _____

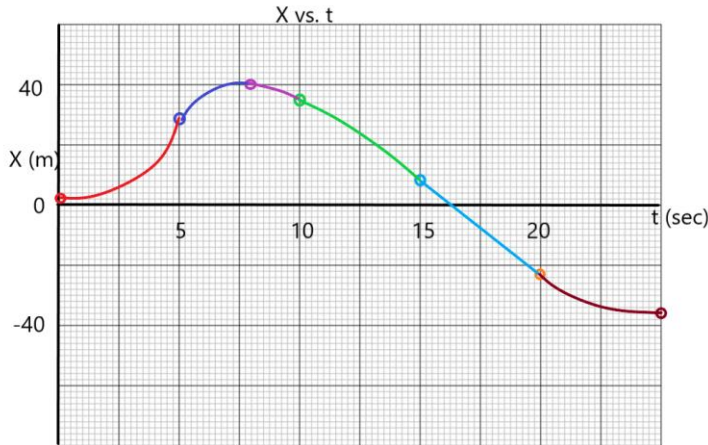
Date: _____

Answers: 1.a 2-5s, 1b: 15-18 s, 1c: 0-2s, 18-20s, 1d. 21-22 s 1e. 4m/s right 1f. 150m, 1g. 10m/s 1h. 1m/s², 1i. 75 m right, 1j. 6s, 18s

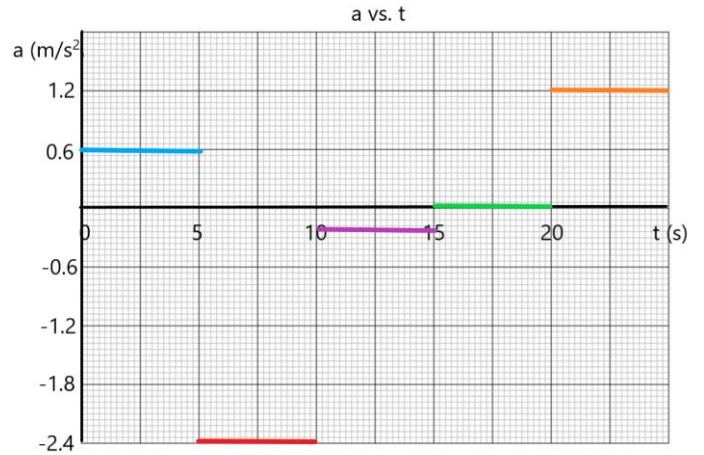
1k:



2. f



2. E



3. a



3. c

