Name:_____Date:_____

Motion Graphs & Kinematics Worksheet:

1. The graph below describes the motion of a fly that starts out flying left.


a. Identify section(s) where the fly moves with constant velocity.

b. Identify section(s) where the fly moves right slowing down.

c. Identify section(s) where the fly moves left speeding up.

d. When is the fly at rest?

e. What is the average velocity of the fly between 0 and 15 seconds?

f. What is the **distance** traveled by the fly in this time interval?

g. What is the average **speed** of the fly in the same time interval?

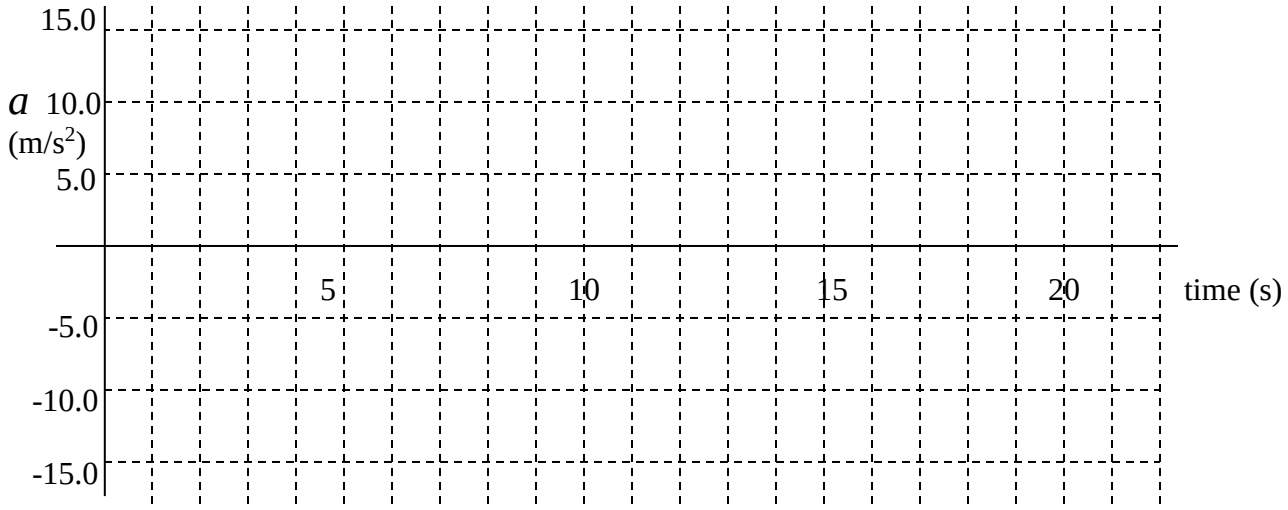
h. What is the average acceleration of the fly in this time interval?

i. What is the total displacement of the fly from 0 to 22 seconds?

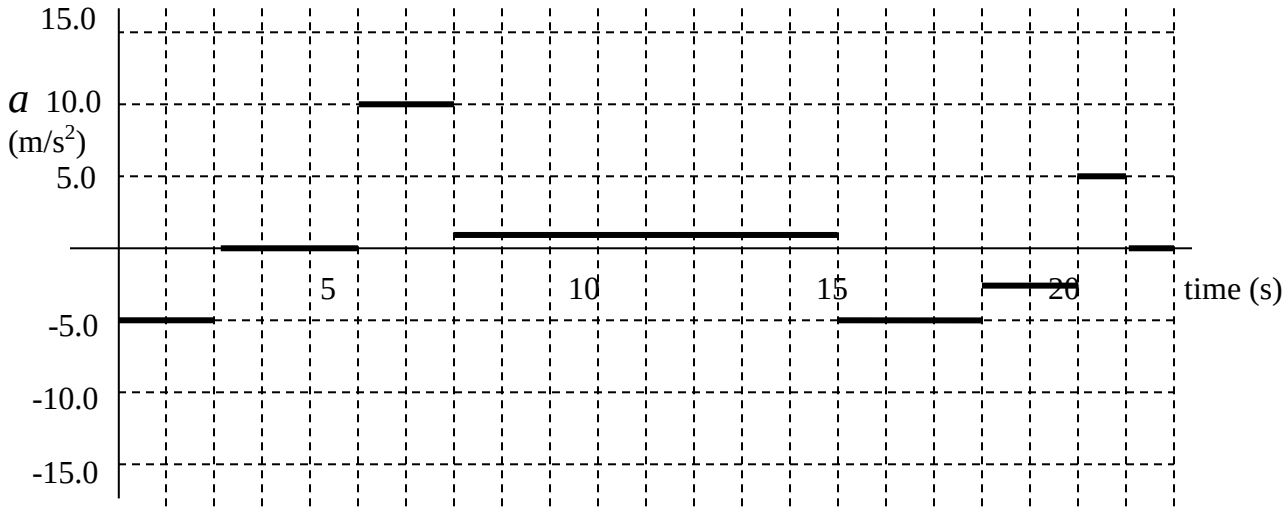
Name:_____Date:_____

j. Identify the times when the fly changes direction.

k. Draw an acceleration vs. time graph for the fly.

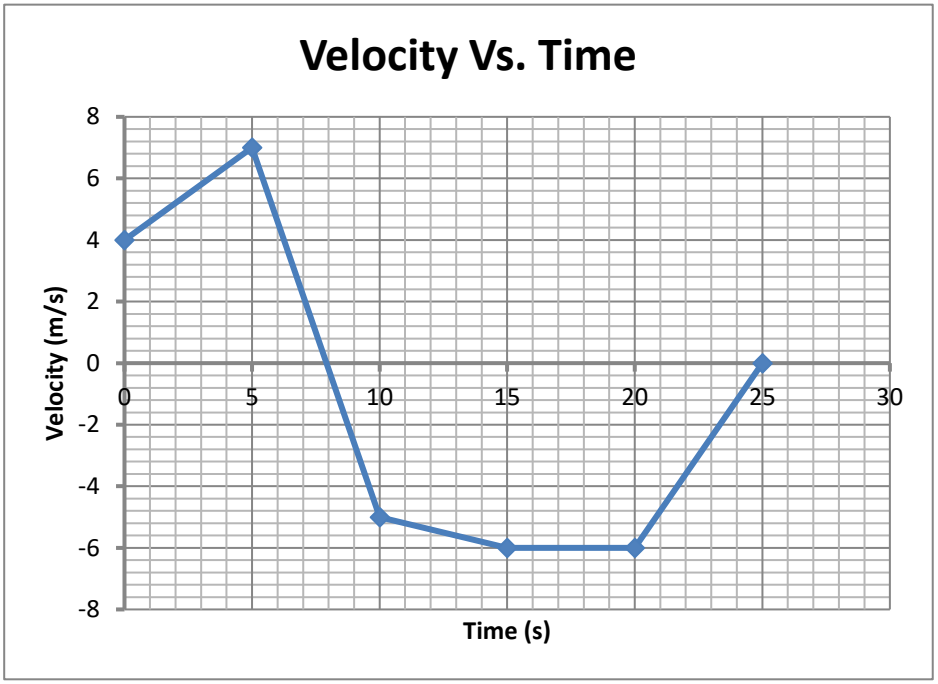



Answers: 1.a 2-5s, 1b: 15-18 s, 1c: 0-2s, 18-20s, 1d. 21-22 s 1e. 4m/s right 1f. 150m, 1g. 10m/s 1h. 1m/s$^2$, 1i. 75 m right, 1j. 6s, 18s
1k:



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)*

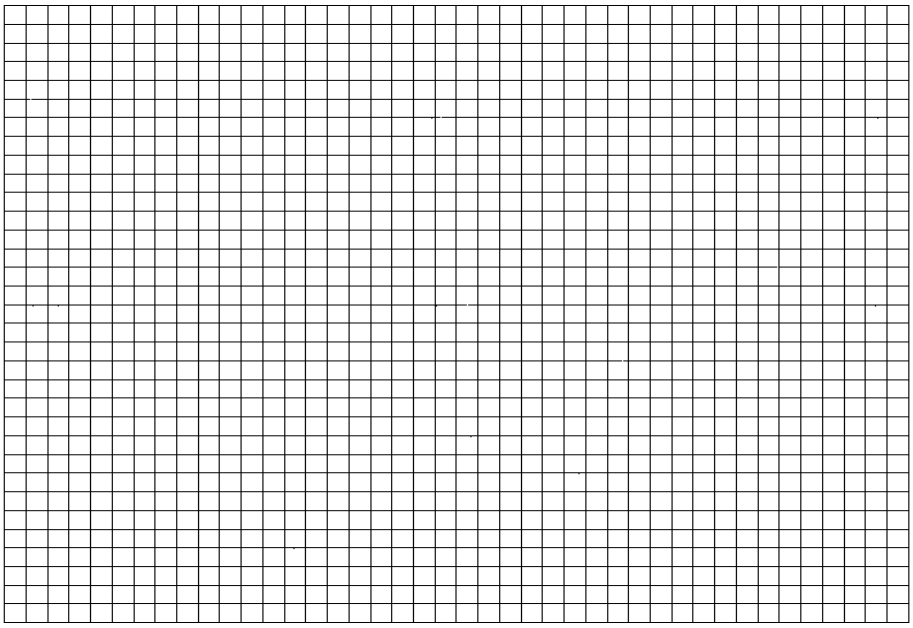
b. What is its average velocity?*(1.58 m/s South)*

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

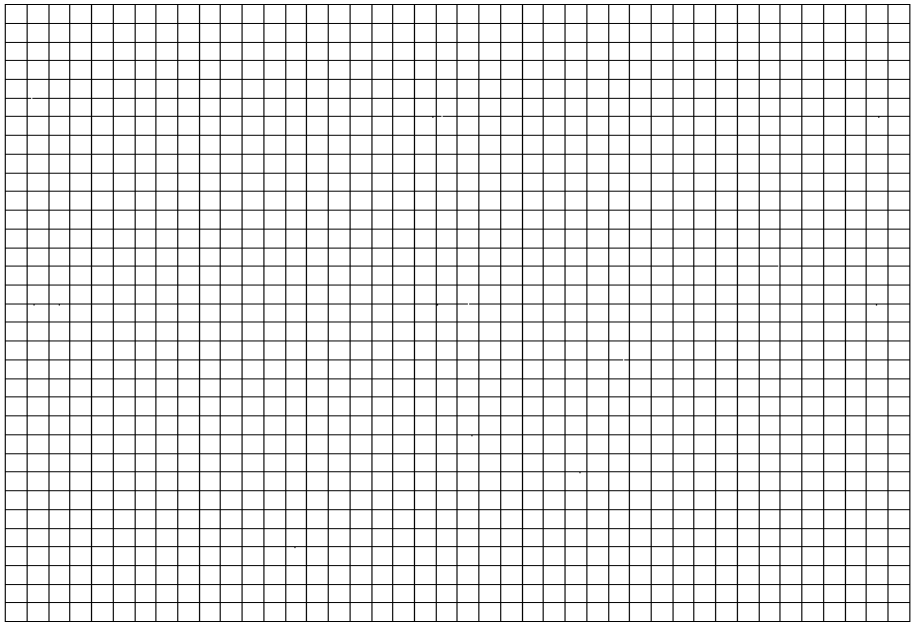
d. What is the average acceleration of the train?*(0.16 m/s$^2$ )*

Name:_____Date:_____

e. Draw the position vs. time graph for the toy train.

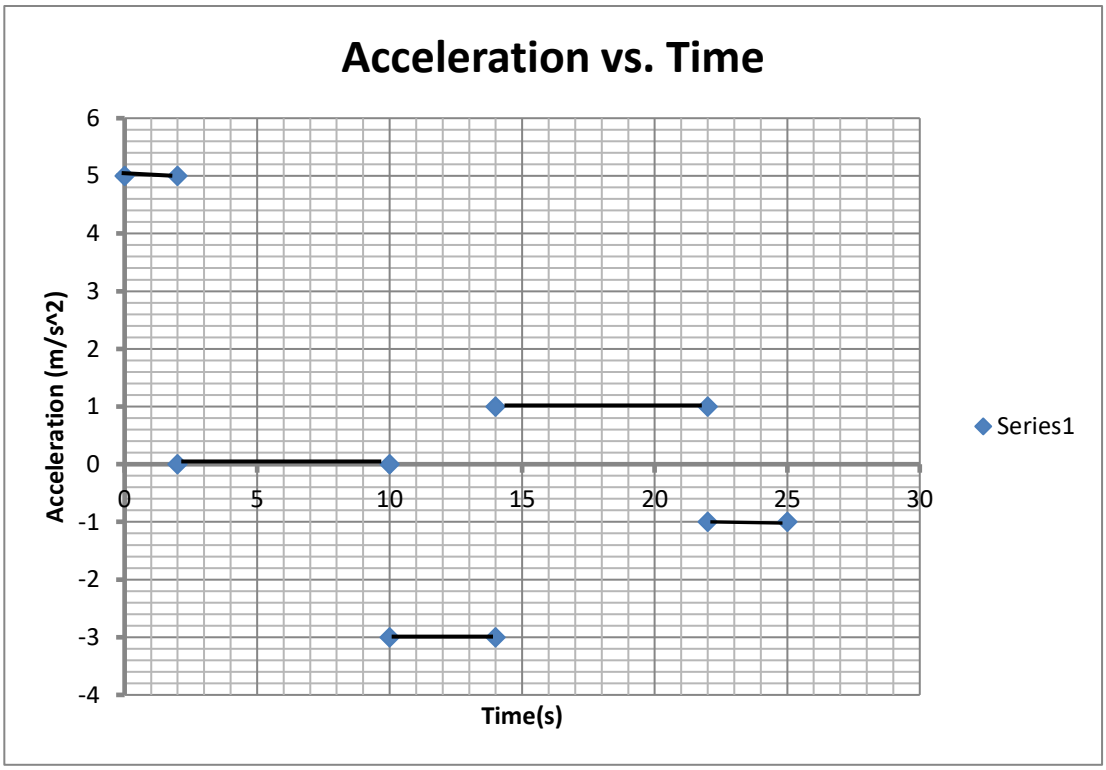


f. Draw the acceleration vs. time graph for the toy train.



Name:_____Date:_____

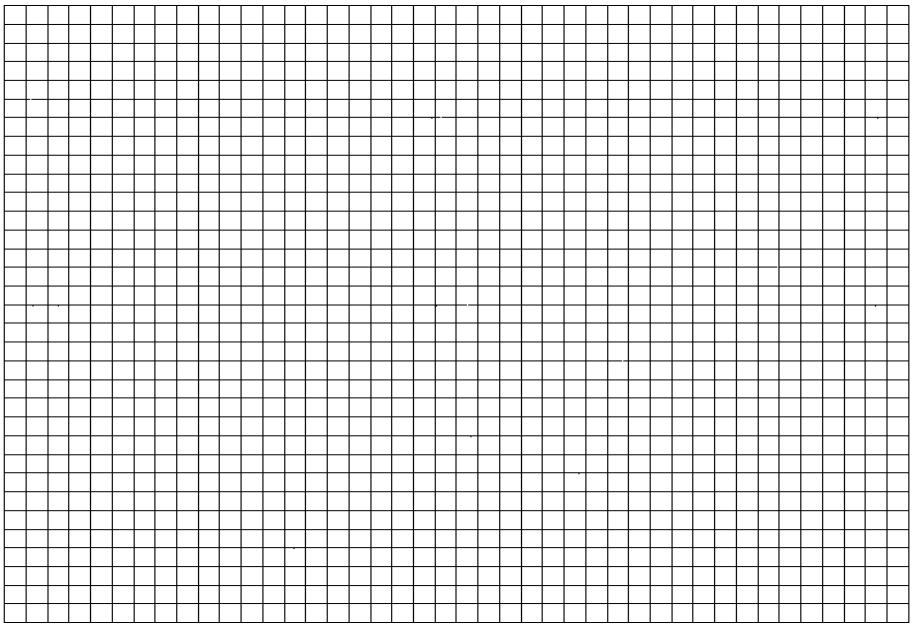
4.




The graph shown above is created by an object that starts at rest from the origin.

a. What is the average acceleration of the moving object?

b. Draw the velocity vs. time graph for the moving object.



Name:_____Date:_____

a. Draw the position vs. time graph for the moving object.