Kinematics

Position: Where something is located on a graph system. It is given by a set of coordinates (x,y).

Speed: The amount of distance travelled per unit of time. (100km/h) (Scalar)

Velocity: The displacement of an object travelled per unit of time. (100km/h [N]) (Vector)

Acceleration: How an object’s velocity changes per unit of time.

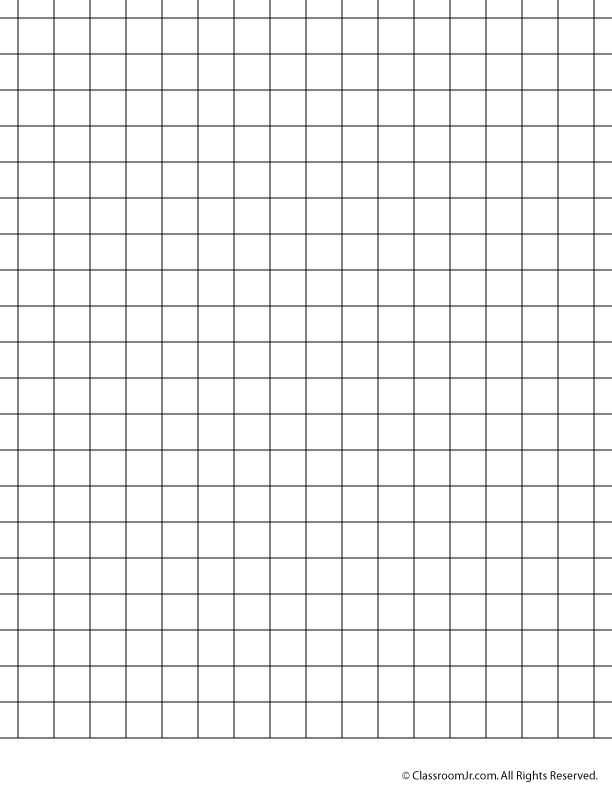
Types of Graphs:

Position vs Time Graphs (PvsT)

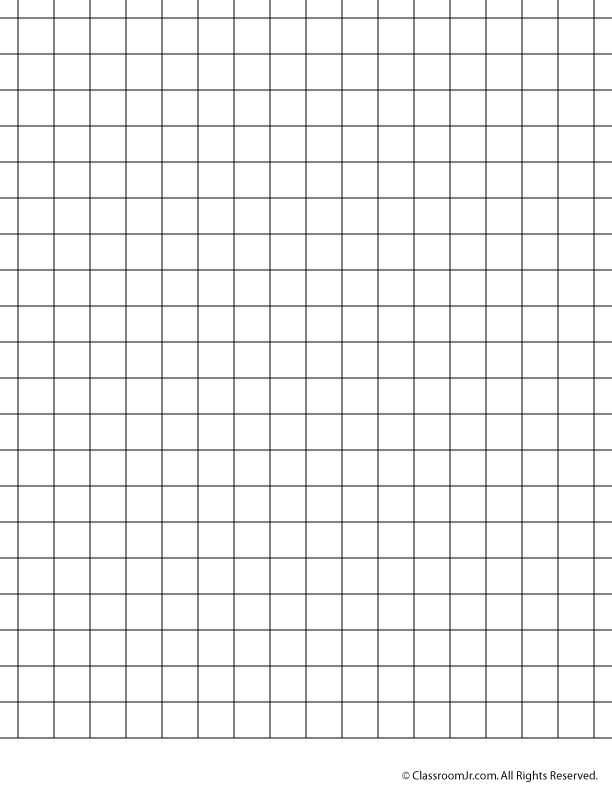
Velocity vs Time Graphs (V vs T)

Acceleration vs Time Graphs (A vs T)

Example of P vs T

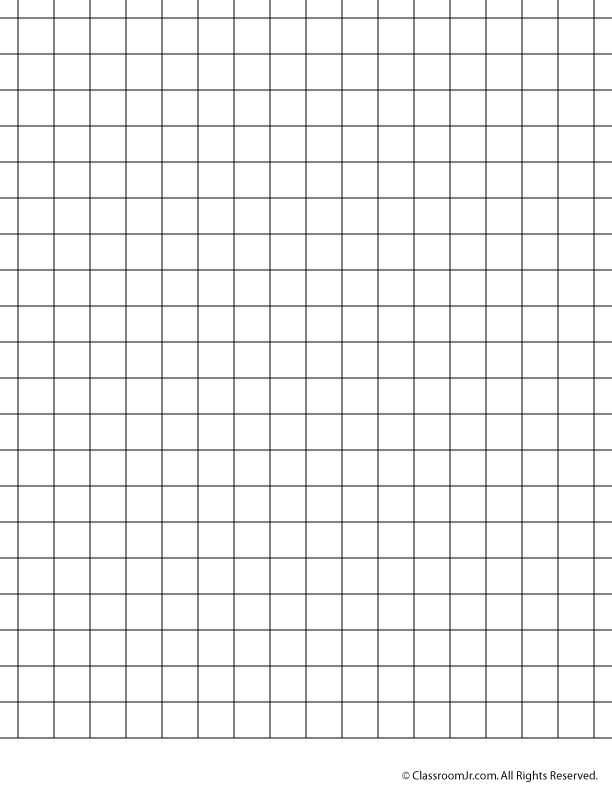
Bob has a GPS in his IPOD that tells his location to Apple every 2.0s. His location was graphed as follows given that his house is his origin.

Kinematics Notes (cont)

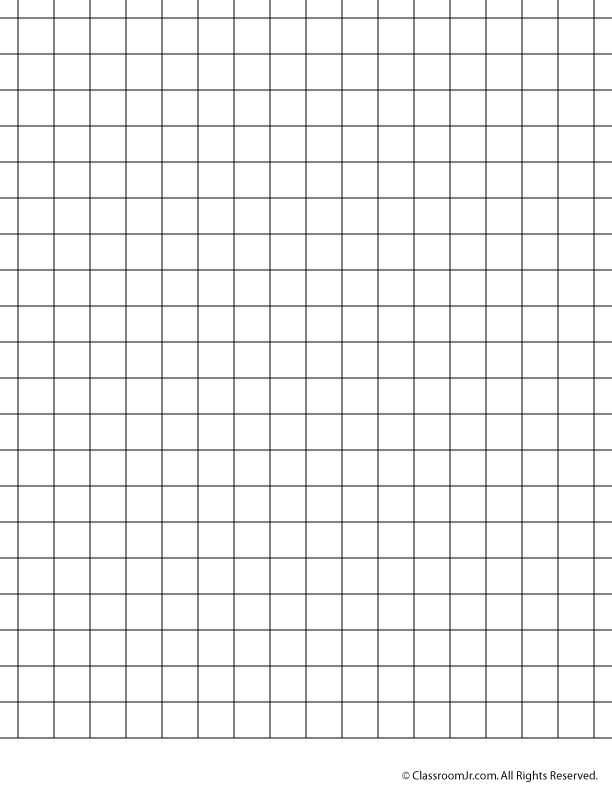
Ex 1:

|  |  |
| --- | --- |
| Time (S) | Position (m) |
| 0 | 0 |
| 5 | 10 |
| 10 | 20 |
| 15 | 20 |
| 20 | 20 |
| 25 | 0 |

September 30, 2015



Formula:

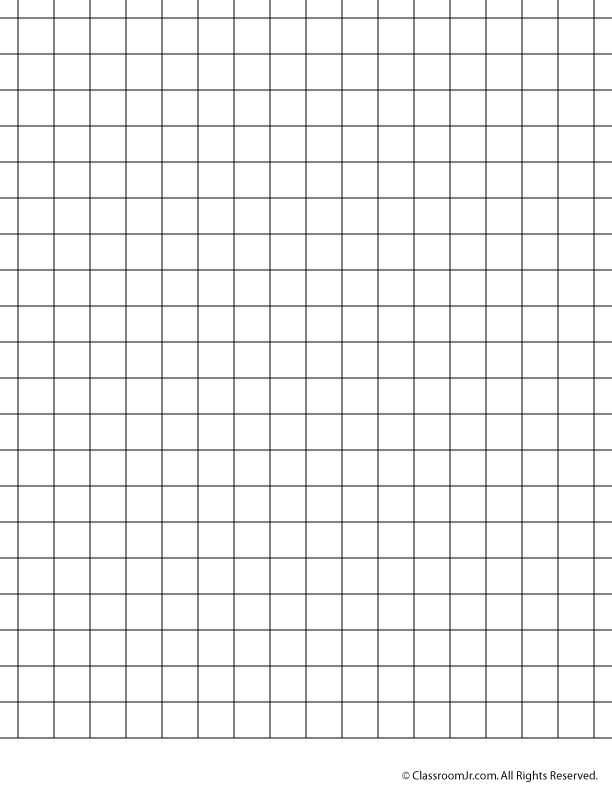


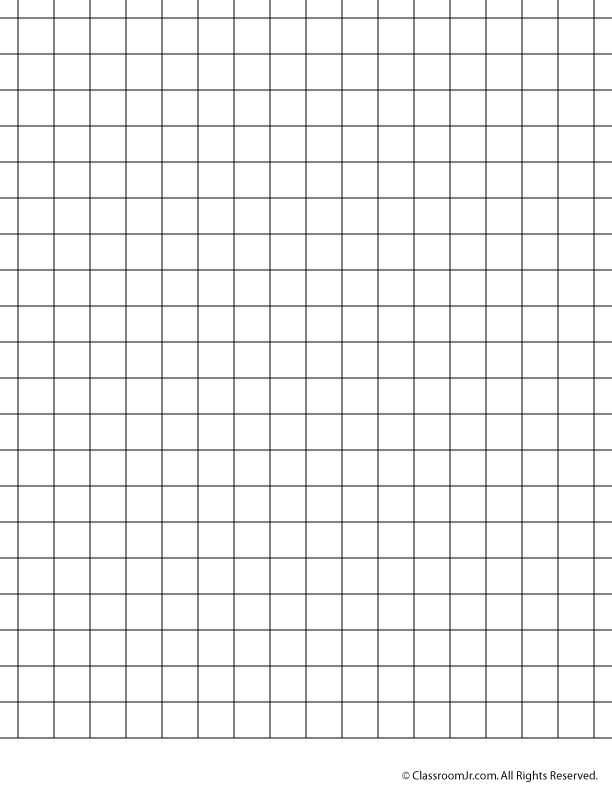
|  |  |
| --- | --- |
| Time (s) | Position (m) |
| 0 | 5 |
| 5 | 0 |
| 10 | -5 |
| 15 | -5 |
| 20 | 10 |
| 25 | 25 |

What is the average velocity?

(Use first point and last point)

What is the average speed?



October 1, 2015

|  |  |
| --- | --- |
| Time (s) | Position (m) |
| 0 | 0 |
| 1 | 1 |
| 2 | 4 |
| 3 | 9 |
| 4 | 16 |
| 5 | 25 |

Find the slope for each interval (ie: 0-1, 1-2, etc.)

0-1 1-2 2-3 3-4 4-5