

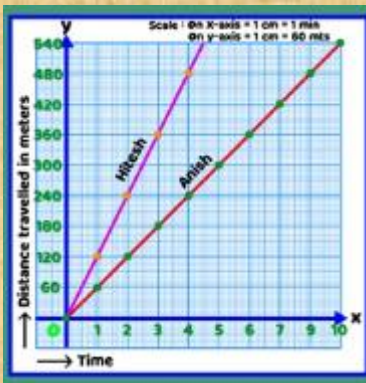
Chapter 12

Graphs of Motion

Graphs of objects moving at different uniform speed

Anish and Hitesh raced from their home to school. Hitesh ran at uniform speed, similarly, Anish also ran at uniform speed. But their uniform speeds are different.

Graph - 2 shows their motions.

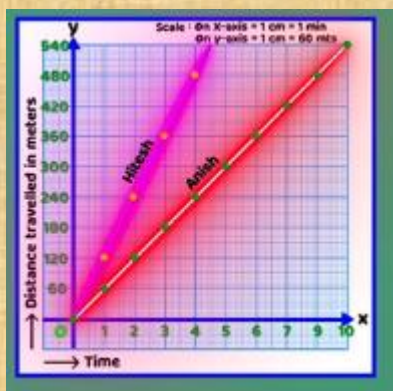


- Can you tell who ran faster just by looking at the graph?
- How much time did Hitesh take to run from home to school?
- Calculate his average speed?
- What was the average speed of Anish?
- Calculate Average speed

$$\text{Average speed} = \frac{\text{Total distance travelled}}{\text{Total time taken to cover the distance}}$$

Relation between speed and the slope of a graph

If we have two graphs of uniform speed, we just by looking at the two-line can tell which speed is greater.



We should look at the angle that the two graph lines make with the X-axis. We can estimate the slope of the graph lines from these angles. The greater the angle, the greater the slope for graph line.

Take a look on below graph.



- Which graph line has the greater slope - Hitesh's or Anish's?

Which is bigger angle in both of them? Hitesh's angle is more than Anish's. Now Hitesh is running at faster speed.

Any graph of uniform motion will be a straight line. The faster the speed of uniform motion the greater will be the slope of the graph line. That is, the angle that graph line makes with the X-axis will be larger. But remember you can make such visual comparisons only between graphs which have the same scale. You cannot compare graphs with different scales just by looking at them.