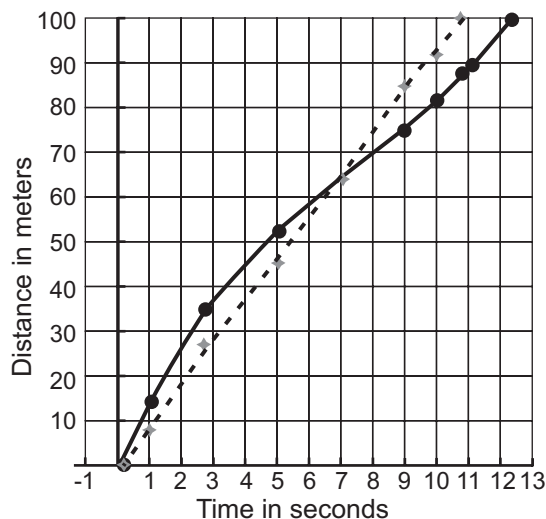


## Reading the Graph



The graph above is a sketch of the time, in seconds, it took two ladies from the USA, Betty Robinson (the solid line with dots) and Marion Jones (the dotted line), to run the woman's 100-meter dash in the Olympics.

1.
  - a) State the independent variable.
  - b) State the dependent variable.
2.
  - a) Both ladies won the gold medal. Who do you think won the gold medal (1<sup>st</sup> place) in 1928 and who won the gold medal in 2000?
  - b) Explain the reasoning behind your choice of winners in part "a".
  - c) What was approximate winning time in 2000?
  - d) Approximately how many seconds were shaved off of the winning time in these 72 years?
3.
  - a) What was Robinson's average speed for the entire race?
  - b) What was Jones' average speed for the entire race?
4.
  - a) If the runners had run the race together, at what time would one runner pass the other?
  - b) How far along the course were Jones and Robinson when this happened?
  - c) Who would have overtaken whom to win the race?

*Student Activity*

5.
  - a) If  $d(t) = 70$ , find  $t$  for each runner.
  - b) Explain what this value represents.
  - c) Find  $d(10)$  for each runner.
  - d) Explain what this value represents.
6.
  - a) From looking at the graph, how does Robinson's speed over the interval from 0 to 2 seconds compare with Jones' speed over the same interval?
  - b) Find Jones' average speed over the interval from 5 to 9 seconds.
  - c) Find Robinson's average speed over the interval from 5 to 9 seconds.
  - d) What do the values in part "b" and "c" represent, using the units of measurement?
7. Suppose the ladies are running on the same track at the same time and you are the commentator for the race. Write a paragraph describing the race that both ladies ran. Indicate in your narrative when or if they increased or decreased their speed, and where they were in comparison to each other. In addition, be sure to speculate what Robinson was planning at about 5 seconds.