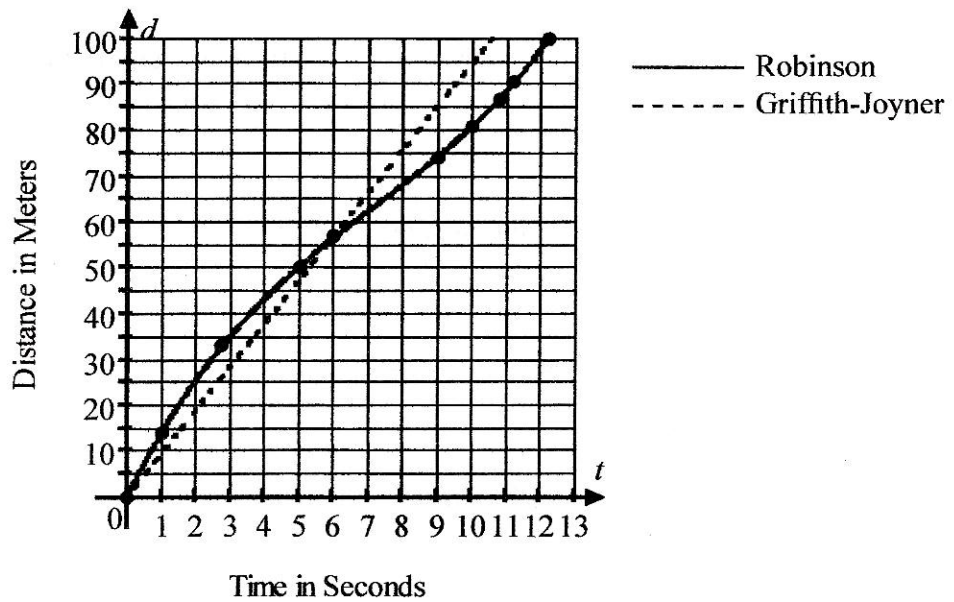


## Reading the Graph



The graph compares the positions of two runners in the women's 100-meter dash in two different Olympics. Both women won the gold medal in their respective Olympics. The position at time  $t$  of Betty Robinson is represented by the solid line, and the position of Florence Griffith-Joyner at time  $t$  is represented by the dotted line.

- What is the independent variable?
  - What is the dependent variable?
- 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 1988?
  - Explain the reasoning behind your choice of winners in part (a).
  - What was the approximate winning time in 1988?
  - Approximately how many seconds were shaved off of the winning time in these 60 years?
- What was Robinson's average speed for the entire race?
  - What was Griffith-Joyner's 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? Round the answer to the nearest second.
  - b. Approximately how far along the course were Griffith-Joyner and Robinson when this would have happened?
  - c. Who would have overtaken whom to win the race?
5.
  - a. Explain the meaning of the statement,  $d(t) = 70$ .
  - b. If  $d(t) = 70$ , approximate  $t$  for each runner.
  - c. Explain the meaning of  $d(10)$ .
  - d. Approximate  $d(10)$  for each runner.
6.
  - a. How does Robinson's average speed over the interval from 0 to 2 seconds compare with Griffith-Joyner's average speed over the same interval? Explain your answer using the graph.
  - b. Determine Griffith-Joyner's average speed over the interval from 5 to 9 seconds.
  - c. Determine Robinson's average speed over the interval from 5 to 9 seconds.
7. Suppose the ladies are running on the same track at the same time and that 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. Indicate their positions in comparison to each other.