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.

1. a. What is the independent variable?

   b. What is the dependent variable?

2. a. Both ladies won the gold medal. Who do you think won the gold medal (1st place) in 1928 and who won the gold medal in 1988?

   b. Explain the reasoning behind your choice of winners in part (a).

   c. What was the approximate winning time in 1988?

   d. Approximately how many seconds were shaved off of the winning time in these 60 years?

3. a. What was Robinson's average speed for the entire race?

   b. 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.