

Characteristic of Function Graphs

Sketching a Function's graph from a verbal

Lyme disease is a bacterial infection transmitted to humans by ticks. When an infected tick bites a human, the probability of transmission is a function of the time since the tick attached itself to the skin. During the first 24 hours the probability is 0%. During the next three 24-hour periods, the rate of change in the probability is always positive, but it is much greater for the middle period than the other two periods. After 96 hours, the probability is almost 100%.

Sketch a graph of the function for the probability of transmission.

From 1974 to 1980, there were drastic fluctuations in the incidence of measles in the United States. In 1975, there was a slight increase in incidence from 1974. The next two years saw a substantial increase in the incidence, which reached a maximum in 1977 of about 26 cases per 100,000 people. From 1977 to 1979, the incidence fell to about 5 cases per 100,000 people. The incidence fell much faster from 1977 to 1978 than from 1978 to 1979. Finally, from 1979 to 1980, the incidence stayed about the same.

Sketch a graph of the function for the incidence of measles.

4. A grocery store stocks shelves with 100 cartons of strawberries before the store opens. For the first 3 hours the store is open, the store sells 20 cartons per hour. Over the next 2 hours, no cartons of strawberries are sold. The store then restocks 10 cartons each hour for the next 2 hours. In the final hour that the store is open, 30 cartons are sold. Sketch a graph of the function.