

Form #155729161218

Step-By-Step

Answers

Save this Test! / Turn Into a Puzzle or Board Game!

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Solve:

- 1) A roast turkey is taken from an oven when its temperature is 202°F and placed on a table in a room where the temperature is 75°F . The temperature of the turkey over x minutes is given by $H = f(x)$. What does $f'(100) = -12$ mean?

At $t = 100$ minutes, the temperature of the turkey is changing at a rate of -12 degrees/min.

- 3) The number of people in North Dakota affected by the flu over September is defined by $N = f(x)$ where x is the day of the month. What is the meaning of $f'(x)$?

The instantaneous rate of people affected by the flu in ND on a particular day in September.

- 5) The number of people in Iowa affected by the flu over December is defined by $N = f(x)$ where x is the day of the month. What is the meaning of $f'(x)$?

The instantaneous rate of people affected by the flu in Iowa on a particular day in December.

- 2) A dozen cupcakes is taken from an oven when its temperature is 200°F and placed on a table in a room where the temperature is 75°F . The temperature of the cupcakes over x minutes is given by $H = f(x)$. $f(x) = -9x - 20$. Find the average rate of change of H with respect to x when minutes is changed from $x = 45$ to $x = 94$.

$$\frac{f(94) - f(45)}{94 - 45} = \frac{-866 + 425}{49} = -9 \text{ degrees/min.}$$

- 4) A manufacturer produces jars of peanut butter. The cost of producing x jars is $C = f(x)$ dollars. $f(x) = -x^2 + x + 2$. Find the instantaneous rate of change of C with respect to x when $x = 25$.

$$f'(x) = -2x + 1$$

$$f'(25) = -49 \text{ dollars/jar}$$

- 6) The number of people in Alabama affected by the flu over October is defined by $N = f(x)$ where x is the day of the month. What does $f'(10) = 4948$ mean?

On the 10th day of October, the instantaneous rate of change of people coming down with the flu in Alabama was 4,948 people per day.