

f r q

$$y = 57 + r(40 - 35) = 51.5.$$

The number of ice cream cones sold on day $t = 40$ was approximately 51 or 52.

(iii) Based on $I(40)$, the number of ice cream cones sold on day $t = 40$ was 52.794, which means 52 or 53 ice cream cones.

The estimate using the average rate of change is the y -coordinate of a point on the secant line that passes through $(35, I(35))$ and $(45, I(45))$. Because I is a quadratic function where $a < 0$, the graph of I is concave down on its entire domain. The secant line is below the graph of I on the interval $(35, 45)$.

Therefore, the estimate found in (ii) using the average rate of change is less than the value of $I(40)$.

Part C

Select a point value to view scoring criteria, solutions, and/or examples to score the response.



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The student response includes this criterion.

- Answer with reason based on use of the displayed quadratic $I(t)$ from Part A

Model Solution

Based on the context of the number of ice cream cones sold, the range of I consists of nonnegative values. Because I is a quadratic function whose graph is concave down on its domain, there is a maximum value for the number of ice cream cones sold. Based on the model, that maximum is 58.640, which means 58 or 59 ice cream cones. The proposed range is $0 \leq I(t) \leq 59$.