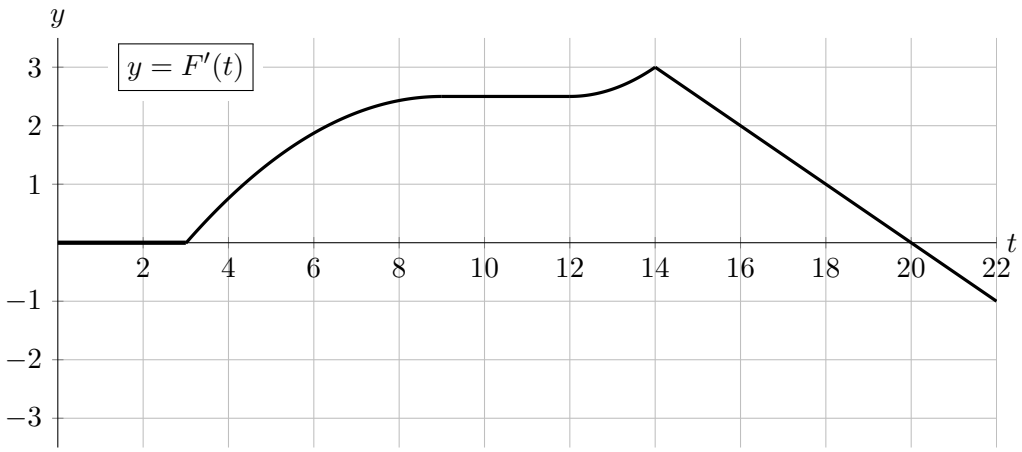
2. [9 points] An environmentalist for a local county has found some data on the county's forest cover. In particular, letting the "forest cover", $F(t)$, be the percentage of the county (by area) that was covered by forest t years after the start of 2000, the environmentalist has the graph of $F'(t)$, the **derivative** of $F(t)$, as shown below.



a. [3 points] At the start of 2016, was the forest cover increasing or decreasing? Circle your answer below. At approximately what rate? *Include units.*

INCREASING DECREASING at a rate of ≈ **2% per year**

b. [2 points] During which of the following years, if any, did the amount of forest cover appear to remain constant for the entire year? Circle **all** correct answers.

2001 2010 2018 2020 NONE OF THESE

c. [1 point] Which **one** of the following statements **best** describes the forest cover during 2004? Circle the numeral of your answer.

i. The amount of forest cover increased faster and faster as the year went on.

ii. The amount of forest cover was increasing, but grew more slowly as the year went on.

iii. The amount of forest cover increased at a constant rate.

d. [3 points] At which of the following times t did the county have the most forest cover? Circle the **one** correct answer, then **explain** in *two sentences or fewer* how you know.

$t = 0$ $t = 3$ $t = 14$ $t = 20$ $t = 22$

Explanation:

Solution: Since this is the graph of F', when the graph is positive, the amount of forest cover is growing. It therefore grows signficantly from 2003 until 2020 (after being constant from 2000-2003), and then only decreases by a small amount from 2020-2022, so 2020 must be when the forest cover was greatest.