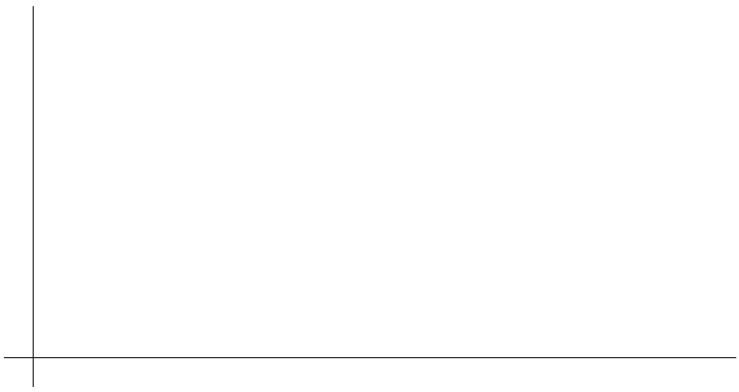
(5.) (12 points) Americans have peculiar food allegiances. For trick-or-treat season, the empty calorie of choice is candy corn – tiny "kernels" made of sugar and food coloring. The sweet, which made its debut in the 1920s, is the top-selling non-chocolate Halloween candy in the US. Unfortunately for connoisseurs of candy corn, the supply is seasonal – it's much easier to find candy corn in mid-October than it is in mid-April, for example.

Let $C(t)$ be the number of bags of candy corn on the shelves of your local grocery store, where t is the number of months since mid-October. Assume that C is periodic with a period of one year, reaching a maximum of 500 bags in mid-October, and a minimum of 10 bags in mid-April (despite its virtues, candy corn is not a popular spring-season candy).

(a) On the axes below, draw a graph of C as a function of t, in months, where $t = 0$ represents October 15. Be sure to label your axes.



(b) Determine a formula for $C(t)$.

(c) Approximately what month during the year is the candy corn supply increasing the fastest?