

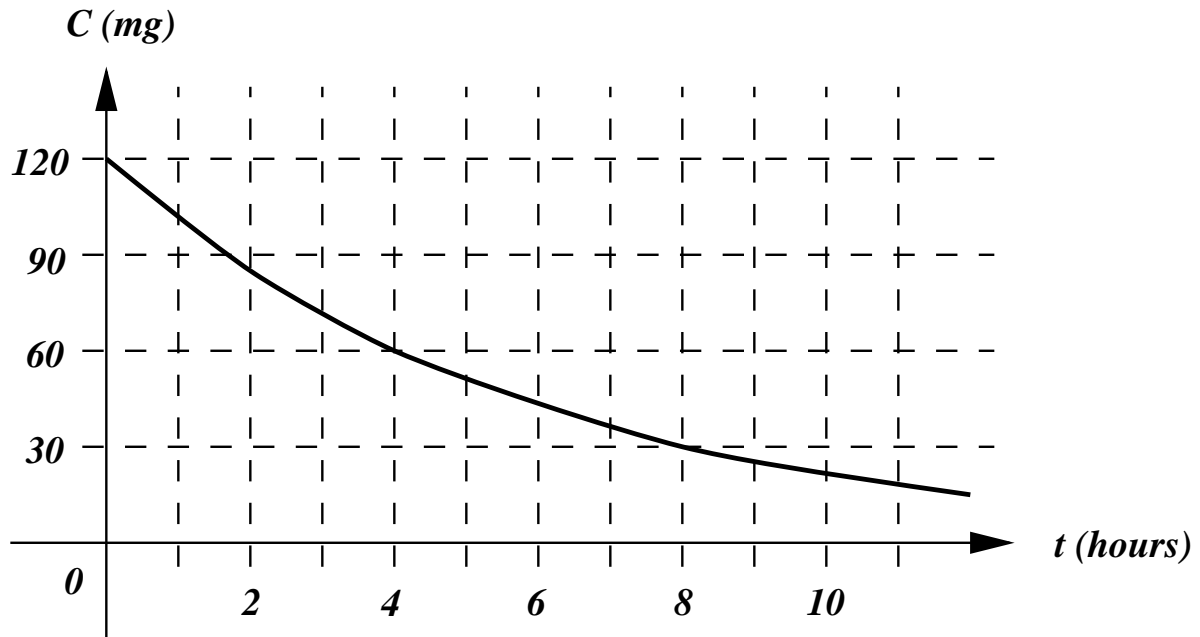
Name \_\_\_\_\_

1. (5 points) Tom has worked at the Yo-Yo Emporium since 1975. His hourly earnings are recorded every fifth year and are listed in the table below.

Year	1975	1980	1985	1990	1995
Hourly Earnings	\$3.23	\$4.53	\$6.66	\$8.57	\$10.07

- (a) What is the average rate of change of Tom's hourly earnings between 1990 and 1995?
- (b) If the average rate of change of his hourly earnings continues at the same rate as between 1990 and 1995, then what is the first year that Tom will earn more than \$15.00 per hour?

2. (5 points) The figure below shows the amount of caffeine,  $C = f(t)$ , in  $mg$ , in a person's bloodstream as a function of the time,  $t$ , in hours, since the person finished a cup of coffee.



- (a) Estimate  $f(8)$  and interpret it using a complete English sentence. This sentence should be easily understood by someone who knows very little mathematics.
- (b) Find the average rate of change in the caffeine levels between  $t = 0$  and  $t = 8$ . Interpret your answer using a complete English sentence.

(c) About how many hours have passed before the caffeine level is down to  $75\text{ mg}$ ?

(d) For the graph shown, what is the value of the vertical intercept. Interpret your answer using a complete English sentence.

(e) If this graph had a horizontal intercept, what would it represent in terms of caffeine or time?