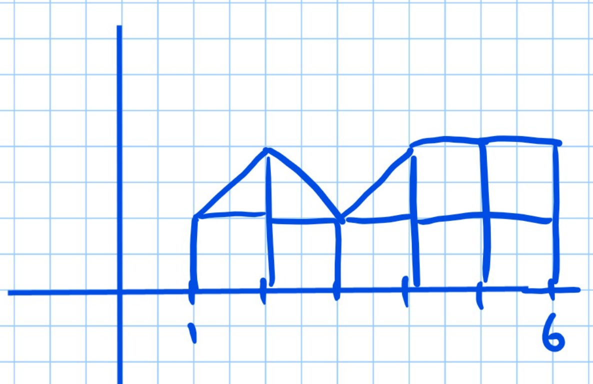
1) Avg value on $[0,2] = \frac{1}{2-0}\boxed{\int_0^2 (1+t)\,dt} = \frac{1}{2}\cdot 4 = 2$

Calculator

fnInt(1+X, X, 0, 2)

10) $\int_0^1 f(t)\,dt$

12) a) $\overbrace{\boxed{\int_1^6 f(x)\,dx}}^{\text{Area}} = \underline{\underline{8.5}}$



b) $\frac{1}{6-1}\left[\begin{array}{c}\text{answer}\\ \text{from a}\end{array}\right]$

$= \frac{1}{5}[8.5]$

13. (a) Using Figure 5.37, estimate $\int_{-3}^{3} f(x)\,dx$. $= -4$

(b) Which of the following average values of $f(x)$ is larger?

(i) Between $x = -3$ and $x = 3$

(ii) Between $x = 0$ and $x = 3$

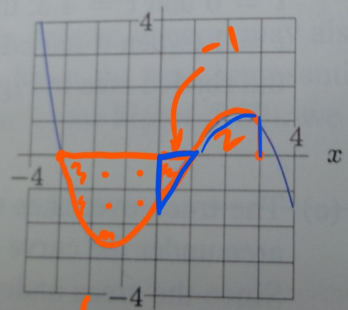


Figure 5.37

$\int_0^3 f(x)\,dx = -1+2$

i) $\frac{1}{3-(-3)}(-4) = -\frac{2}{3}$

$\int_0^3 f(x)\,dx \approx 1$

Avg value $= \frac{1}{3-0}\cdot 1$

ii $= \frac{1}{3}$

22) a) $H(t) = 20 + 980e^{-0.1t}$

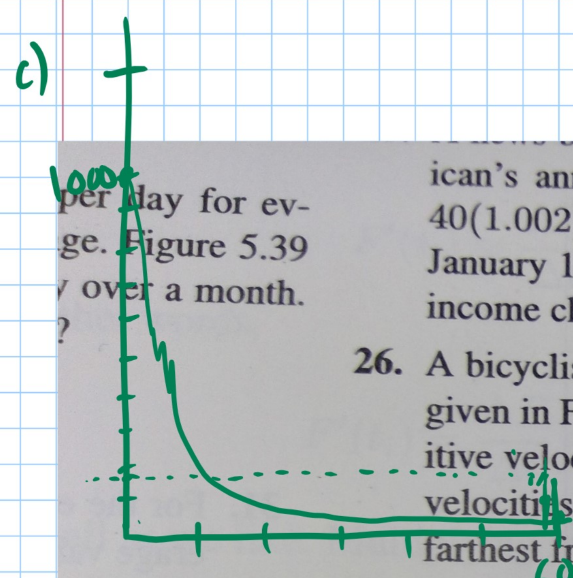
$H(60) = 20 + 980e^{-0.1(60)}$

b) $\underbrace{\frac{1}{60-0}\int_0^{60}\left(20+980e^{-0.1t}\right)dt}$

$\frac{1}{60}(10{,}975.71)$

Avg Value $= 182.93$

c)



per day for ev-
ge. Figure 5.39
over a month.
?

...ican's annual income is changing at a rate of $r(t) = 40(1.002)^t$ dollars per month, where t is in months from January 1, 1993. How much did the average American's income change during 1993?

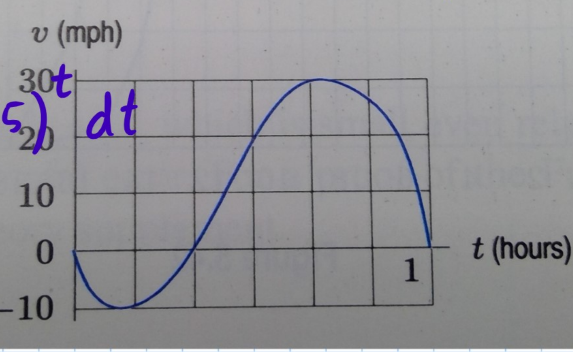
25) $r(t) = 40(1.002)^t$

$\underbrace{\int_0^{12} 40(1.002)^t\,dt}$

$= 485.80$

26. A bicyclist pedals along a straight road with velocity, v, given in Figure 5.40. She starts 5 miles from a lake; positive velocities take her away from the lake and negative velocities take her towards the lake. When is the cyclist farthest from the lake, and how far away is she then?

23) $\frac{1}{35-0}\int_0^{35} 225(1.15)^t\,dt$



plain why the
r] must be be-

for ev-
re 5.39
month.

$40(1.002)^t$ dollars per month, where t is in months from January 1, 1993. How much did the average American's income change during 1993?

26. A bicyclist pedals along a straight road with velocity, v, given in Figure 5.40. She starts 5 miles from a lake; positive velocities take her away from the lake and negative velocities take her towards the lake. When is the cyclist farthest from the lake, and how far away is she then?

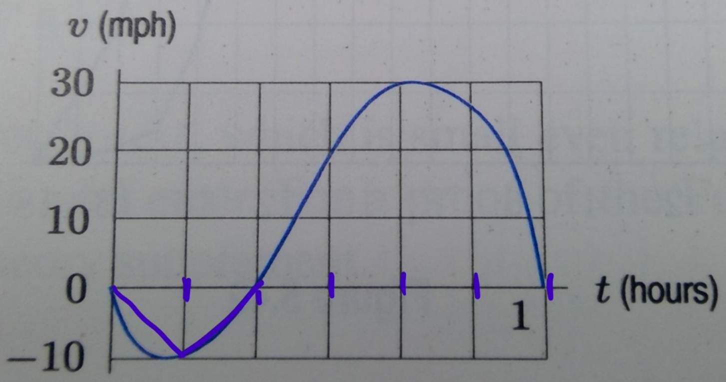


Figure 5.40

t	distance from lake
0	5
$1/6$	

the
be-

ver

27. Figure 5.41 shows the rate, $f(x)$, in thousands of al