Mathematics 122

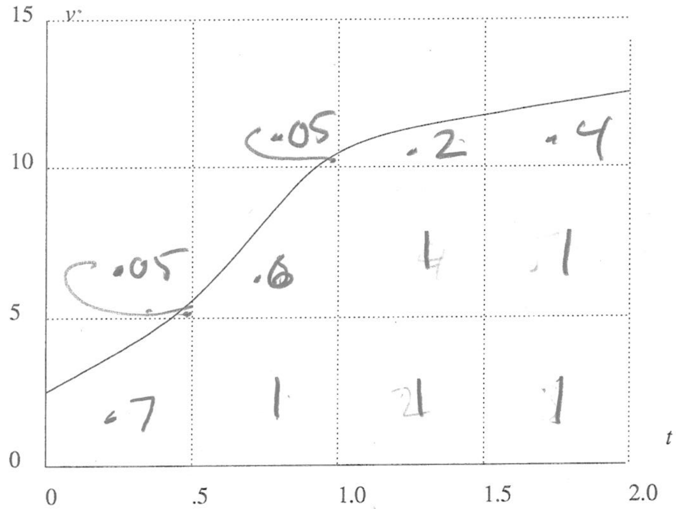
Quiz # 19 Name: Key

You must show your work to get full credit.

1. Use your calculator to compute the following:

$$\int_0^4 2^x\,dx = 4.3281 \qquad \int_{-1}^{2} \frac{u\,du}{\sqrt{1+u^2}} = .82185$$

2. The following is a graph of the velocity, v, of a runner in ft/sec and a function of time, t, in seconds.



each box is
(.5)(5) = 2.5
I count
(1+1+1+1+1
+.7+.05+.6
+.05+.2+.4)
= 7.0 boxes
= 7(2.5) = 17.5

Give an estimate for the distance covered: ≈ 17.5 ft

3. Roger runs a marathon. His friend Jeff rides behind him on a bicycle and records his speed every quarter of an hour. Roger starts out strong but after and hour and a half he is so exhausted that he has to stop. Here is Jeff's data:

Time since start (hours)	0.0	0.25	0.50	0.75	1.0	1.25	1.5
Speed (mph)	12	11	10	10	8	7	0

Compute the following for the distance he has covered:

$.25(12+11+10+10+8+7) =$ Upper bound 14.5 miles

$.25(11+10+10+8+7+0)$ Lower bound 11.5 miles

Best Guess 13.0

$\left[\frac{14.5+11.5}{2}\right]$