Math 141

Name:_____

Homework 11

1. The following chart shows the speed of a moving object over a period of 30 seconds.

Time (s)	0	5	10	15	20	25	30
Speed (m/s)	1.2	2.0	2.8	3.4	4.0	4.4	4.8

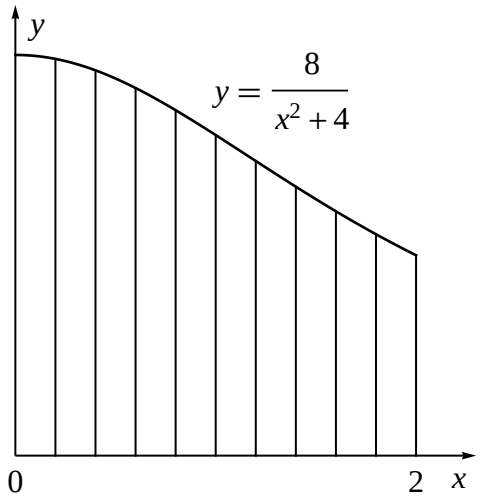
   (a) Estimate the average speed of the object during the first five seconds.

   (b) Estimate the distance traveled by the object over the first five seconds.

   (c) Use your method from parts (a) and (b) to estimate the distance traveled by the object over each five-second interval.

   (d) Based on your answer to part (c), what was the total distance traveled by the object over the 30-second period?

2. The goal of this problem is to estimate the value of $\int_0^2 \frac{8}{x^2+4}\,dx$. The following picture shows ten rectangles drawn under the graph of $y = \frac{8}{x^2+4}$.

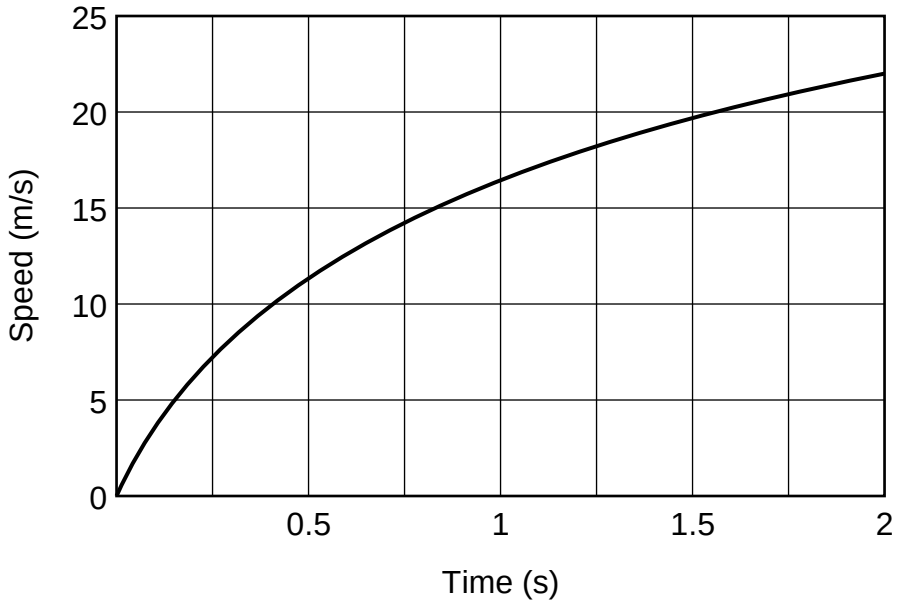


Each rectangle has the same width.

(a) Make a table showing the middle x-coordinate, estimated height, and estimated area of each rectangle. Keep track of at least four decimal places.

(b) Based on your answer to part (a), what is total area of the ten rectangles?

3. The following graph shows the speed of a cheetah during the first two seconds of a sprint:



Estimate the distance run by the cheetah during the first two seconds as accurately as you can. (Your answer must be correct to within 2 meters to receive full credit.)