1 Consider the function $f(x)=4x-x^2$ and the point $P(1,3)$ on the graph of *f*.

(a) Graph *f* and label point *P*.

(b) Estimate the slope of the curve at point $P(1,3)$. Draw the secant line through point *P* and the point you used to estimate the slope.

(c) Describe how to obtain a better estimation for the slope at $P(1,3)$.

(d) Estimate the area under the graph of *f* but above the *x*-axis.

2 Consider the function $f(x)=\sqrt{x}$ and the point $P(4,2)$ on the graph of *f*.

(a) Graph *f* and label point *P*.

(b) Estimate the slope of the curve at point $P(4,2)$. Draw the secant line through point *P* and the point you used to estimate the slope.

(c) Describe how to obtain a better estimation for the slope at $P(4,2)$.

(d) Estimate the area under the graph of *f* but above the *x*-axis from $x=0$ to $x=4$.

3 $f(x)$ is a continuous functions with domain all real numbers. Selected values of $f(x)$ are given in the table below:

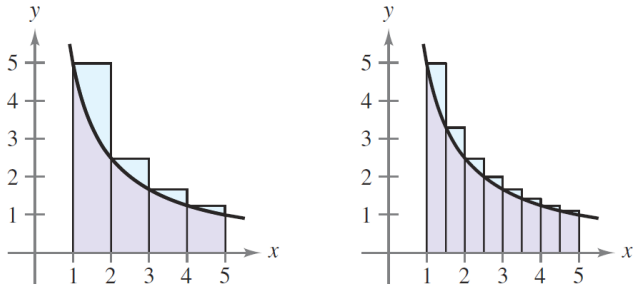
x	-4	-1	0	3	8	11
$f(x)$	-5	2	4	2	1	6

a) Approximate the slope of $f(x)$ when $x=0$.

b) Approximate the area under the graph of $f(x)$ on the interval $[-4,11]$.

4.

(a) Use the rectangles in each graph to approximate the area of the region.



(b) Describe how you can obtain a better approximation of the area of the shaded region.