# "Area-So-Far Functions"

1. Let $f$ be the constant function $f(x) = 5$.

   (a) Sketch the graph of $f$ on a sheet of graph paper.

   (b) Define the "area-so-far" function $A$ by $A(x)$ is the area under the graph $y = f(x)$ from $0$ to $x$. Compute each of the following using geometric formulas.

   i. $A(0)$ iii. $A(2)$
   ii. $A(1)$ iv. $A(3)$

   (c) Find a formula for $A(x)$. *Sketch the appropriate rectangle on the graph of $f$. Label the lengths of its sides.*

   (d) Define another "area-so-far" function $F$ by $F(x)$ is the area under the graph $y = f(x)$ from $-1$ to $x$. Compute each of the following using geometric formulas.

   i. $F(0)$ iii. $F(2)$
   ii. $F(1)$ iv. $F(3)$

   (e) Find a formula for $F(x)$. *Sketch the appropriate rectangle on the graph of $f$. Label the lengths of its sides.*

2. Let $f$ be the function $f(x) = 2x$.

   (a) Sketch the graph of $f$ on a sheet of graph paper.

   (b) Define the "area-so-far" function $A$ by $A(x)$ is the area under the graph $y = f(x)$ from $0$ to $x$. Compute each of the following using geometric formulas.

   i. $A(0)$ iii. $A(2)$
   ii. $A(1)$ iv. $A(3)$

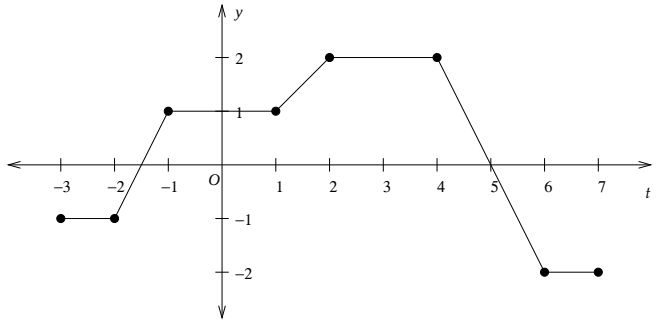
   (c) Find a formula for $A(x)$. *Sketch the appropriate geometric figure on the graph of $f$.*

   (d) Define another "area-so-far" function $F$ by $F(x)$ is the area under the graph $y = f(x)$ from $1$ to $x$. Compute each of the following using geometric formulas.

   i. $F(1)$ iii. $F(3)$
   ii. $F(2)$ iv. $F(4)$

   (e) Find a formula for $F(x)$. *Sketch the appropriate geometric figure on the graph of $f$.*

3. Consider the function $f$ whose graph is given.




   (a) Define the "area-so-far" function $A$ by $A(x)$ is the area under the graph $y = f(x)$ from $0$ to $x$. Compute each of the following using geometric formulas.

   i. $A(0)$ iv. $A(3)$
   ii. $A(1)$ v. $A(4)$
   iii. $A(2)$ vi. $A(5)$

   (b) Define another "area-so-far" function $F$ by $F(x)$ is the area under the graph $y = f(x)$ from $-1$ to $x$. Compute each of the following using geometric formulas.

   i. $F(-1)$ v. $F(3)$
   ii. $F(0)$ vi. $F(4)$
   iii. $F(1)$ vii. $F(5)$
   iv. $F(2)$

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