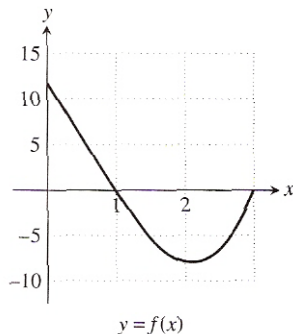


1. Let  $F(x) = \int_0^x f(t)dt$ ,

where  $f(t)$  is the continuous function whose graph is shown.

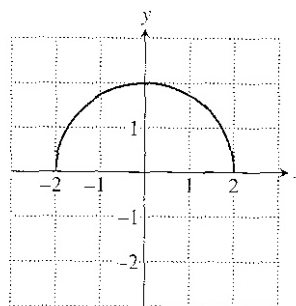


(A) Where does  $F$  achieve its maximum value? Explain.

(B) Where does  $F$  achieve its minimum value? Explain.

(C) Sketch a graph for  $F$  on the interval  $[0, 3]$ .

2. Evaluate  $\frac{d}{dx} \int_x^6 2t^2 dt$ .

3. The graph of  $f$  is the semicircle shown.

Let  $g$  be the function given by  $\int_0^x f(t)dt$ .

What is the value of  $g(-2)$ ?

4. The table shows the velocity of a remote-controlled toy car as it traveled down a hallway for 10 seconds.

<b>Time (sec)</b>	0	1	2	3	4	5	6	7	8	9	10
<b>Velocity (in./sec)</b>	0	6	10	16	14	12	18	22	12	4	2

Estimate the distance traveled by the car using 10 subintervals of length 1 and the method shown.

(A) Left-hand rectangles

(B) Right hand intervals

5. Be able to find the equation of a tangent line to a continuous function.

6.  $g(x) = \int_0^x f(t)dt$ . Evaluate  $g'(x)$ .

7. Be able to integrate any general antiderivative of any function. (Also known as indefinite integrals or symbolic integration.)

8. Be able to integrate any definite integral.