Class 12: The Second Fundamental Theorem of Calculus

And Some Other Stuff about Anti-Derivatives
Calculus II

College of the Atlantic. Feb 5, 2023

1. Write down a function $F(x)$ whose derivative is $f(x) = x^5$.

2. Write down a function $F(x)$ whose derivative is $f(x) = x^5$ and for which $F(0) = 7$.

3. Write down an expression for a function $\mathrm{Si}(x)$ whose derivative is $\sin(x)/x$ and for which $\mathrm{Si}(0) = 0$.

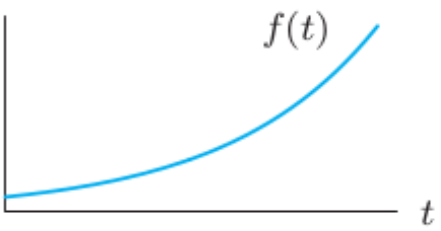
4. Write down an expression for a function $\mathrm{Si}_1(x)$ whose derivative is $\sin(x)/x$ and for which $\mathrm{Si}_1(10) = 0$.

5. Write down an expression for a function $\mathrm{Si}_2(x)$ whose derivative is $\sin(x)/x$ and for which $\mathrm{Si}_2(10) = 5$.

6. Evaluate $\mathrm{Si}(8)$.

In Exercises 7–10, let $F(x) = \int_0^x f(t)\,dt$. Graph $F(x)$ as a function of x.

7.



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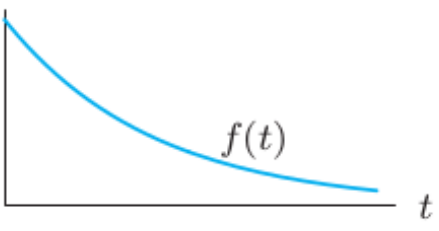

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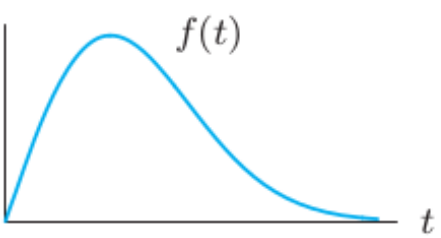

10.