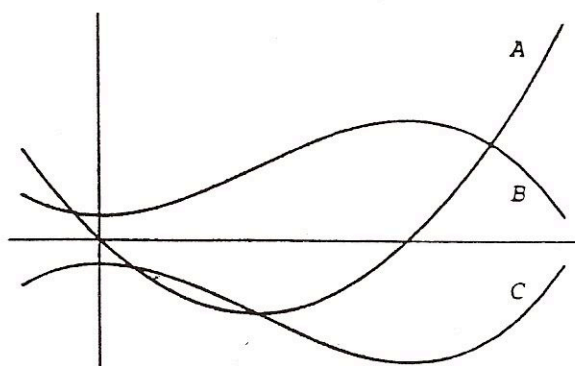
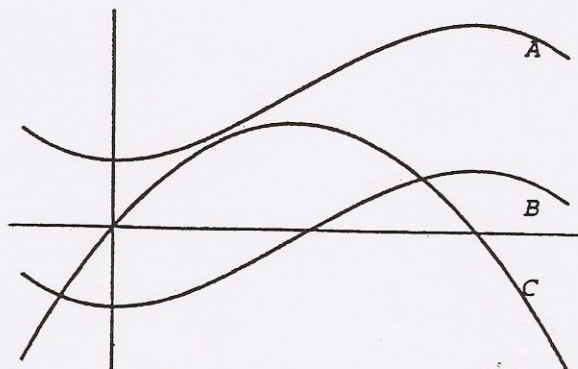


Goal: To develop a better understanding of the relationship between a function and its antiderivatives.

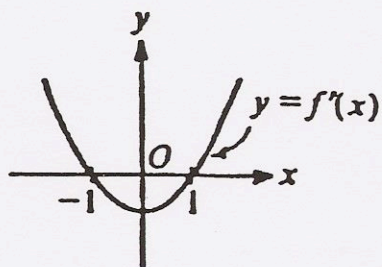
1. Consider the three graphs in the figure below. If the graph labeled A is the graph of a function f , then which graph is an antiderivative of f ? (You must be able to explain the reasoning you used to obtain your answer.)



2. In this problem the graph labeled C is the graph of a function f . Which graph represents an antiderivative of f ?

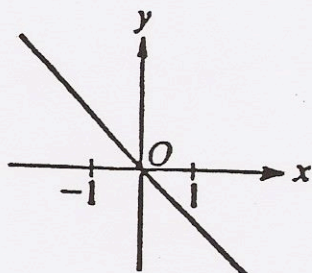


3. The graph of the derivative of f is shown in the figure below.

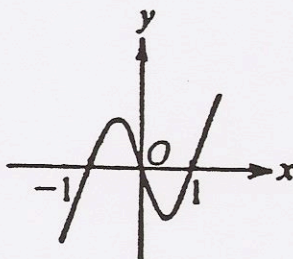


Explain why each graph below cannot be the graph of f .

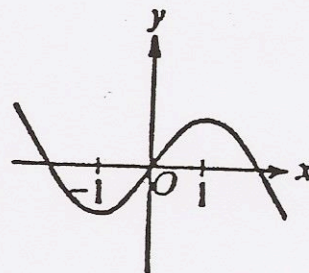
a.



b.



c.



4. (a) Confirm that $\frac{d}{dx} \sin^2 x = 2 \sin x \cos x = \sin 2x$.

(b) Your work in (a) verifies that one antiderivative of $\sin 2x$ is $\sin^2 x$. Find an antiderivative of $\sin 2x$ that involves the function $\cos 2x$ and explain how $\sin 2x$ can have these two different antiderivatives.