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MATH 2301 GW25: Antiderivatives

Rememer that these words: $\boldsymbol{f(x)}$ **is an antiderivative of** $\boldsymbol{g(x)}$**.**
simply mean this: $\boldsymbol{f'(x) = g(x)}$**.**
So to answer the question: **Is given function** $\boldsymbol{f(x)}$ **an antiderivative of given function** $\boldsymbol{g(x)}$**?**
your strategy should be: **Find** $\boldsymbol{f'(x)}$ **and see if it equals** $\boldsymbol{g(x)}$**.**

For each question, answer YES or NO, and explain why or why not.

1) Is $f(x) = x^5$ an antiderivative of $g(x) = 5x^4$?

2) Is $f(x) = (x^2 + 3x + 7)^5$ an antiderivative of $g(x) = 5(x^2 + 3x + 7)^4$?

3) Is $f(x) = 0$ an antiderivative of $g(x) = \pi$?

4) Is $g(x) = \pi$ an antiderivative of $f(x) = 0$?

5) Is the function $k(x) = 0$ an antiderivative of itself?

The Group Work continues on back ➔

6) Is $f(x) = 5e^{(x)}$ an antiderivative of itself ?

7) Is $f(x) = 5e^{6}$ an antiderivative of itself ?

8) Is the function $\frac{1}{x}$ an antiderivative of the function $\ln(x)$?

9) Is the function $\ln(x)$ an antiderivative of the function $\frac{1}{x}$?

10)Is the function $x \ln x - x + 17$ an antiderivative of the function $\ln(x)$?

11)Is $F(x) = 2 + x \ln(x)$ an antiderivative of $f(x) = 1 + \ln(x)$?

12)If n is any real number, is $\frac{x^{n+1}}{n+1}$ an antiderivative of x^n?