
1. (1 pt) Find the 111 th derivative of the function $f(x) = \cos(x)$.

The answer is function _____

2. (1 pt) Let $f(x) = x^4 + 4x^3 + 3x^2 + 4x$.

Then $f'(x)$ is _____

and $f'(3)$ is _____

$f''(x)$ is _____

and $f''(3)$ is _____

3. (1 pt) If $f(x) = 5 + \frac{4}{x} + \frac{3}{x^2}$, find $f'(x)$.

Find $f'(5)$.

Find $f''(x)$.

Find $f''(5)$.

4. (1 pt) Let

$$f(x) = \frac{-6x^4}{1-x}$$

$f^{(4)}(x) =$ _____

Note: There is a way of doing this problem without using the quotient rule 4 times.