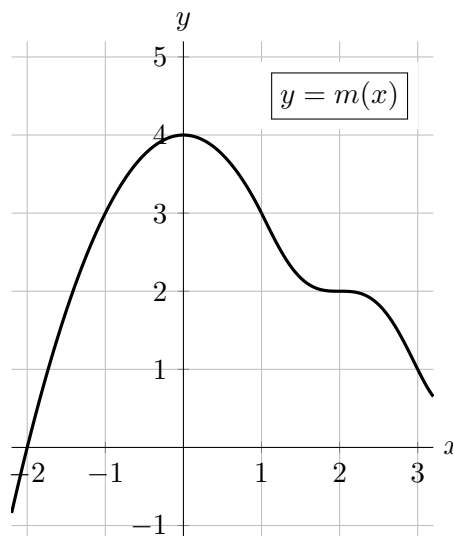


1. [9 points]

A portion of the graph of the function $m(x)$, which is defined for all real numbers, is shown to the right. You are also given the following about $m(x)$:

- $m(x)$ is differentiable everywhere, and has a horizontal tangent line at $x = 2$.
- $m(x) = -x^2 + 4$ for all $x \leq 0$.
- The line $y = 5 - 2x$ is tangent to $m(x)$ at $x = 1$.

For parts **a.–c.**, find the **exact** values, or write NEI if there is not enough information to do so, or write DNE if the value does not exist. Your answers should not include the letter m , but you do not need to simplify. *Show work.*



a. [3 points] Let $A(x) = \ln(m(x) + x)$. Find $A'(-1)$.

Answer: $A'(-1) =$ _____

b. [3 points] Let $B(x) = x^3 m(x)$. Find $B'(1)$.

Answer: $B'(1) =$ _____

c. [3 points] Let $C(x) = \frac{m(x)}{x^2}$. Find $C'(2)$.

Answer: $C'(2) =$ _____