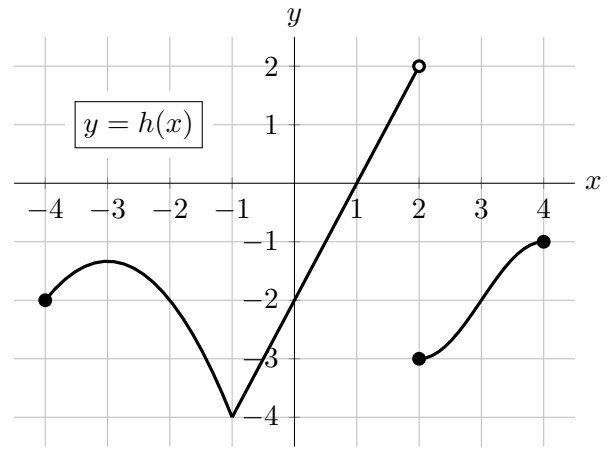


7. [11 points]

Shown to the right is the graph of a function $h(x)$.For parts **a.–c.**, circle **all** correct choices.a. [2 points] Which of the following are critical points of $h(x)$?

$x = -3$ $x = -1$ $x = 1$ $x = 2$ $x = 3$ NONE OF THESE

b. [2 points] On which of the following interval(s) does $h(x)$ satisfy the hypotheses of the Mean Value Theorem?

$[-4, -1]$ $[-4, 0]$ $[0, 2]$ $[3, 4]$ NONE OF THESE

c. [2 points] On which of the following interval(s) does $h(x)$ satisfy the conclusion of the Mean Value Theorem?

$[-4, -1]$ $[-4, 0]$ $[0, 2]$ $[3, 4]$ NONE OF THESE

d. [5 points] Define the function $k(x)$ such that

$$k(x) = \begin{cases} h(x) & -4 \leq x < 1 \\ A^2 \sin(Ax + B) & 1 \leq x \leq 4, \end{cases}$$

where A and B are constants. Find one pair of values for A and B that make $k(x)$ differentiable at $x = 1$. *Show your work.*

Answer: $A =$ _____ and $B =$ _____