2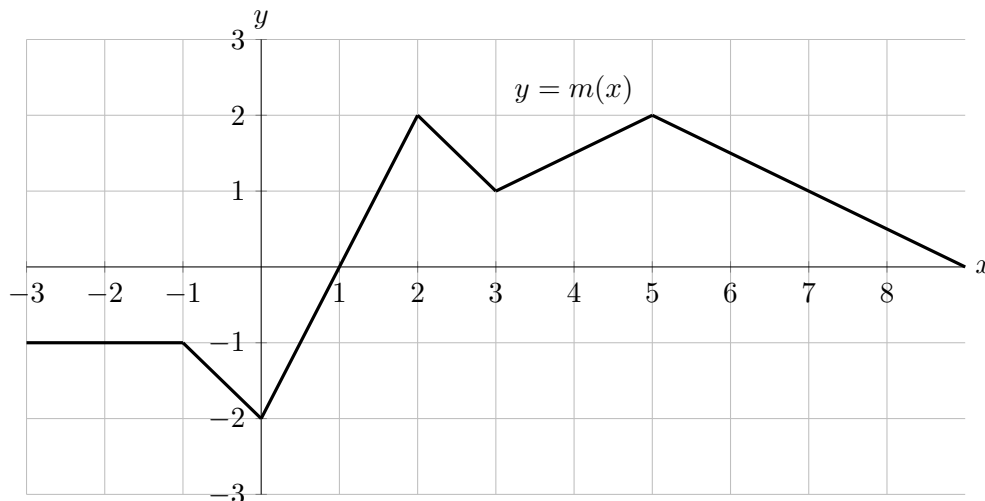. [14 points] Part of the graph of a continuous, piecewise-linear function $m(x)$ is given below. The domain of $m(x)$ is all real numbers.

$y = m(x)$

Let:

- $F(x) = \displaystyle\int_1^x m(t)\,dt$

- $G(x) = \displaystyle\int_2^{x/2} m(t)\,dt$

- $H(x)$ is an antiderivative of $m(x)$ with $H(2) = 8$.

You do not need to show work for this problem.

a. [11 points] Find the following values. If it is not possible to do so based on the information provided, write "NI". If the value does not exist, write "DNE".

(i) $F(1) =$ _____

(ii) $F(3) =$ _____

(iii) $F(-2) =$ _____

(iv) $F'(4) =$ _____

(v) $G(2) =$_____

(vi) $G(6) =$ _____

(vii) $G'(8) =$ _____

(viii) $H(3) =$ _____

(ix) $H(10) - F(10) =$ _____

b. [3 points] On which of the following intervals is $H(x)$ concave up on the entire given interval? Circle all correct answers.

$(0, 2)$ $\qquad$ $(1, 3)$ $\qquad$ $(2, 5)$ $\qquad$ $(3, 5)$ $\qquad$ NONE OF THESE