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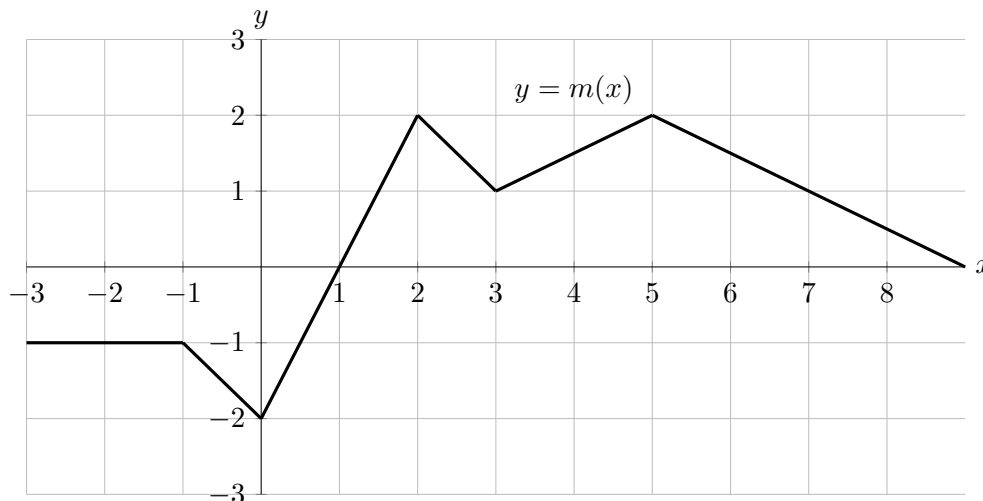* [14 points] Part of the graph of a continuous, piecewise-linear function $m(x)$ is given below. The domain of $m(x)$ is all real numbers.

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) = $ ___0___

(ii) $F(3) = $ ___2.5___

(iii) $F(-2) = $ ___3.5___

(iv) $F'(4) = $ ___1.5___

(v) $G(2) = $ ___−1___

(vi) $G(6) = $ ___1.5___

(vii) $G'(8) = $ ___0.75___

(viii) $H(3) = $ ___9.5___

(ix) $H(10) - F(10) = $ ___7___

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

$\boxed{(0, 2)}$ $(1, 3)$ $(2, 5)$ $\boxed{(3, 5)}$ NONE OF THESE