5. [12 points] A particle moves according to the following parametric equations

\[ x = x(t) \quad \text{and} \quad y = y(t) \quad \text{for} \quad -2 \leq t \leq 2, \]

where the graphs of \( x(t) \) and \( y(t) \) are shown below.

a. [2 points] Is there a value of \( t \) at which the particle is at the point \((0, 2)\)? If so, find the value of \( t \) where this happens.

b. [3 points] At which value(s) of \( t \) does the particle on the \( x \)-axis?

c. [4 points] At what points \((x, y)\) does the curve traveled by the particle have a horizontal tangent line? Include the time of each point.

d. [3 points] For which of values of \( t \) is the slope of the tangent line to the curve positive?