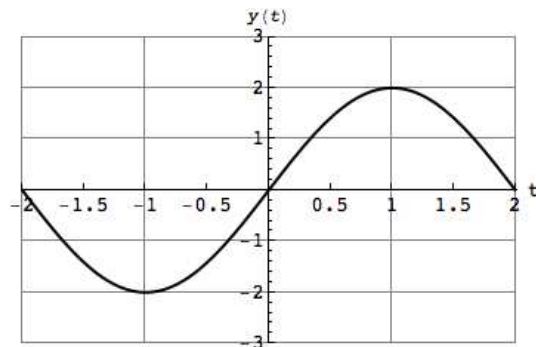
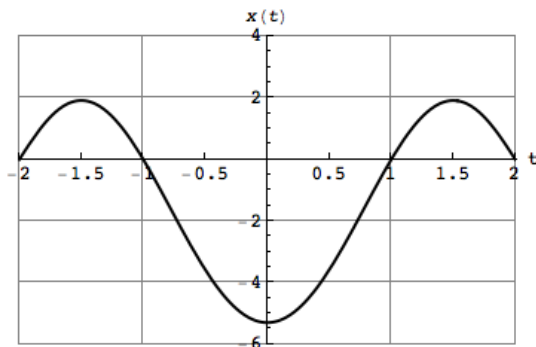


5. [12 points] A particle moves according to the following parametric equations

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

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?