MATH 243: SECTION 10.1 GROUPWORK

For the following, attempt to sketch the curves by hand before using computer tools.

(1) Consider the parametric curve given by the parametric equations

$$x = \frac{e^t - e^{-t}}{2}$$
$$y = \frac{e^t + e^{-t}}{2}$$

where $-\infty < t < \infty$. Sketch a graph of this curve.

(2) Consider the parametric curve given by the parametric equations

$$x = -\sec t$$
$$y = \tan t$$

where $-\pi/2 < t < \pi/2$. Sketch a graph of this curve. Compare to the curve from the previous problem. Do you know another name for these curves?

(3) Consider the parametric curve given by the parametric equations

$$x = e^t$$
$$y = e^{-3t}$$

where $-\infty < t < \infty$. Eliminate the parameter to find a Cartesian equation for the curve just in terms of x and y.