# Math 128
## Assessment 3

**Instructions:** Write out solutions using complete sentences to explain your work. Use a separate piece of paper for each standard. You may use the internet as long as it does not solve the problem for you. Remember you are convincing me that you understand the concepts, not simply giving me "the answer". I know the answer. When you are done, upload your work to Gradescope.
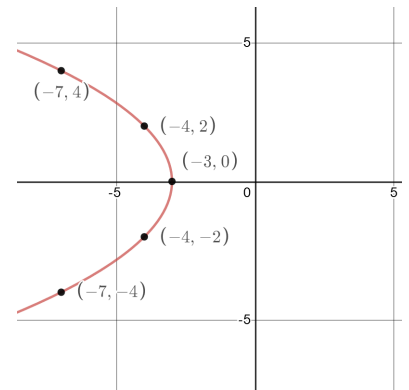
## Standard 7.

**7-1.** In this course we have seen and used standard functions (of one variable like $y = f(x)$) and parametric functions. Give at least two ways in which these types of functions are similar and at least two ways in which they are different.

**7-2.** Convert the equation $x = \sin y + \cos y - 4$ into a set of parametric equations. Make sure to indicate the domain for $t$.

**7-3.** Graph the parametric function $\begin{cases} x(t) = t \\ y(t) = -\sqrt{t} \end{cases}$ for $0 \leq t \leq 9$. In a few sentences, explain your reasoning.

## Standard 8.

**8-1.** Give the set of parametric equations for an ellipse centered at (1,3) that is 10 units wide and 1 unit tall. Make sure to indicate the domain for $t$.

**8-2.** Suppose that your parametric function $\{x = f(t), y = g(t)\}$ has the graph to the right. Draw the graph of the parametric function given by $\{x = -f(t), y = -g(t) - 3\}$. Explain your reasoning.
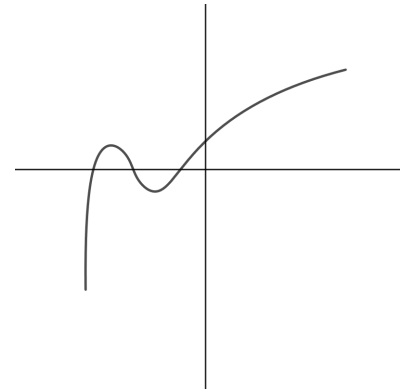


**8-3.** Give the parametric equations for the parabolic graph to the right.



## Standard 9.

**9-1.** Using at least three sentences, explain in your own words what a linear interpolation is.

**9-2.** Give the parametric equations for the line segment that has endpoints $(-1, -1)$ and $(1, 1)$. Make sure to justify your reasoning and indicate the domain for $t$.

**9-3.** Use Desmos to create the functions that lie in the linear interpolation between $y = x$ and $y = \ln x$, as shown to the right. Give the parametric equations of one of those functions. Explain your reasoning.