Assignment 5

Math 351

Upload the `.tex` source and the `.pdf` output containing your solution to exercise 1 to PolyLearn on or before Sunday. An assignment which completes this exercise in an interesting way will earn the coveted LaTeXer of the week distinction.

Exercise 1. Use TikZ to complete at least 2 of the tasks on the following list. The goal is to create attractive graphics which communicate technical ideas in a clear and concise manner.

1. Draw the graph of the function $x^2 - x$ on $[0, 3]$, complete with grid lines and labeled axes. Fill in the area underneath the curve on $[1, 2]$, representing the area calculated by $\int_1^2 (x^2 - x)\, dx$. This can be done in a similar way as one of the examples in the sample `.tex` file.

2. Draw any one of the five representations of the Wagner graph as seen at

   http://mathworld.wolfram.com/WagnerGraph.html

   Do not make the vertices too small when drawing graph theory graphs; the node option `inner sep = X` for a length `X` can control the size of nodes.

3. The illustration defining the six trigonometric functions in the sample `.tex` file uses the angle $\theta = \pi/3$. Adapt this figure to show all six trigonometric functions when taking $\theta = -\pi/4$ instead.

4. Draw any one of the 35 Young tableaux containing the integers $1, \ldots, 7$ shown in the middle of the web page

   http://mathworld.wolfram.com/YoungTableau.html