0.1 Self Guided Challenges

Using the example figures from the last three sections as a guide, feel free to attempt to replicate these figures. These (like the example figures) are all from my homework, and as such I know for a fact they are all doable using the same methods as before. For the last example you may need to consult the CircuitTikZ documentation.

Challenge 1: The provided image is an example of sampling a sinusoidal signal with a sampling period 1/T. The sampling function $p(t)$ has a duty cycle $d = 0.25$ and a height $h = 1$. Make the amplitude and frequency of the sinusoidal function parameterized so they can be changed if needed.

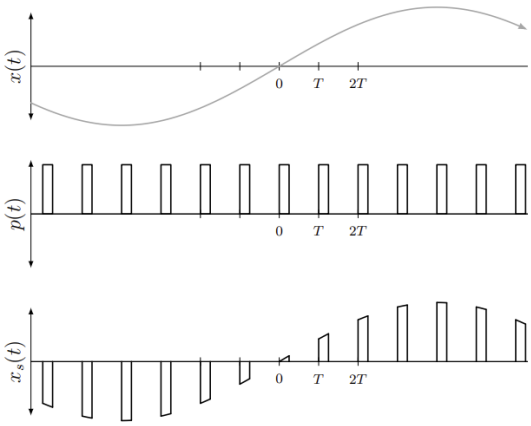

Figure 1: Challenge Prompt 1

Figure 2: Replication of Prompt 1

Challenge 2: The provided image is a circuit I took from one of my Communication Systems lab reports. It can take a sampled circuit like the one above, and render a DSB-SC AM signal from it. Replicate this schematic below.

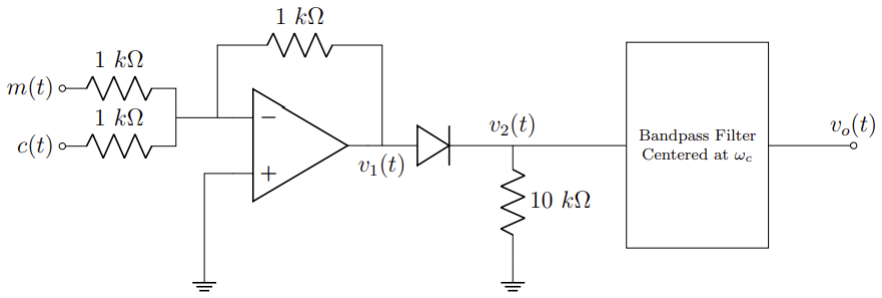

Figure 3: Challenge Prompt

Figure 4: Replication of Prompt 2

Challenge 3: The provided image comes from a homework problem assigned in the elective class 1Intro to Photonics'. The provided image in the assignment was rather low resolution like the one given, so I replicated it in LaTeXfor my submission (because why not?). Replicate this figure below:

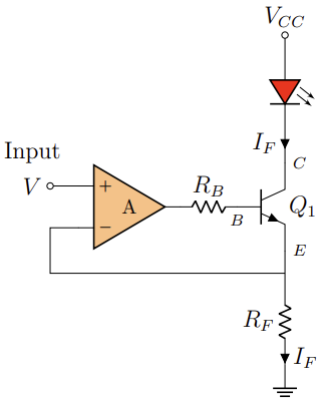

Figure 5: Challenge Prompt 3

Figure 6: Replication of Prompt 3