1. Using the definition of the DTFT, find the DTFT of $x[n] = \alpha^n u[n+1]$, if $|\alpha| < 1$ (the condition on α keeps the signal bounded, otherwise the DTFT would not exist).

2. Using the definition of the DTFT, find the DTFT of $x[n] = 6\,\delta[n-3]$.

3. Using the definition of the DTFT, find the DTFT of $x[n] = \begin{cases} 1, & -N \le n \le N \\ 0, & \text{otherwise} \end{cases}$

   For half credit, find the solution as a sum of complex exponentials. For full credit, put the result as a sum of cosines (use Euler's Identity).

4. Using any method (hint: one way is to use Euler's Identity to break up the cosine into the sum of two complex exponentials and look in your text for a table that transforms a complex exponential), find the DTFT of $x[n] = 6\cos(n/10)$.