ECE113, Winter 2023 **Quiz #8**
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Monday, 6 Feb 2023
10 points total.

Name: _____
UID: _____

1. (10 points) Using the definition determine the DTFT of the following sequences. It is does not exist say why:
   (a) $x[n] = 2^n u[-n]$
   (b) $x[n] = 2^{|n|}$

   Solution:

   (a) DTFT does exist because it's absolutely summable.
   $X(\Omega) = \sum_{n=-\infty}^{0} 2^n e^{-j\Omega n} = \sum_{n=0}^{\infty} 2^{-n} e^{j\Omega n} = \frac{1}{1-0.5e^{j\Omega}}$
   (b) DTFT does not exist because it's not absolutely summable.