

Islamabad Campus

Department of Electrical Engineering
Program: B.E. (Electrical)
Semester - Fall 2018
Solution
EL 313- Signal & Systems

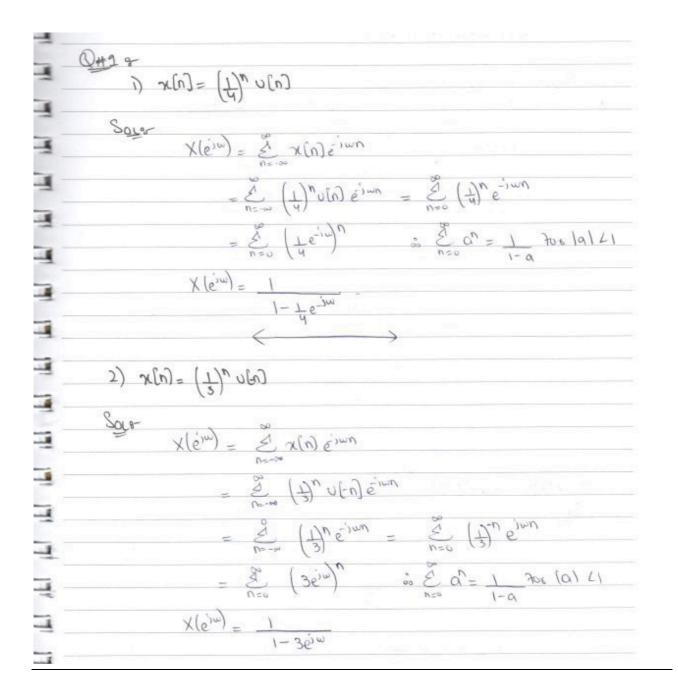
Question # 1:

Compute the discrete-time Fourier transform of the following signals:

$$1. x[n] = \left(\frac{1}{4}\right)^n u[n]$$

$$2. \quad x[n] = \left(\frac{1}{3}\right)^n u[-n]$$

Solution:



Question # 2:

Find the Fourier series coefficients for each of the following signals:

$$1. \quad x(t) = \sin\left(10\pi t + \frac{\pi}{6}\right)$$

2.
$$x(t) = 1 + \cos(2\pi t)$$

Solution:

using Euler's identity sin 0 = 010-e10 is x(t)= & a reinmot hence wo = 2TT Otherwise ax = 0. 2) x(+)= 1+ cos(211) using Euler's identity cost = e'0 +e'0 $a_{-1} = a_1 = \frac{1}{2}$ and $a_0 = 1$. All others a_{ij} 's = 0.

Good Luck