Discrete time systems and z-transform

Solutions Module 3 - No steps

- 1.a: $X(z) = \frac{1}{1-3z}$, ROC: $|z| < \frac{1}{3}$

- 1.b: $X(z) = \frac{1-(3z)^{-5}}{1-(3z)^{-1}}$, ROC: $|z| > 0$

- 1.c: $X(z) = \frac{z^{-1}(1-z^{-N})}{(1-z^{-1})^2}$, ROC: $|z| > 1$

- 1.d: $X(z) = \frac{az}{1-az} + \frac{1}{1-az^{-1}}$, ROC: $|a| < |z| < \frac{1}{|a|}$

- 1.e: $X(z) = \frac{z^N - 1}{z^{N-1}(z-1)}$, ROC: $|z| > 0$