

1-03-j Tutorial

Question 1

4.15. Find the inverse z-transform of

$$X(z) = z^2 \left(1 - \frac{1}{2} z^{-1} \right) (1 - z^{-1}) (1 + 2z^{-1}) \quad 0 < |z| < \infty \quad (4.79)$$

Question 2

4.17. Find the inverse z-transform of the following $X(z)$:

$$(a) X(z) = \log \left(\frac{1}{1 - az^{-1}} \right), |z| > |a|$$

$$(b) X(z) = \log \left(\frac{1}{1 - a^{-1}z} \right), |z| < |a|$$

Question 3

4.18. Using the power series expansion technique, find the inverse z-transform of the following $X(z)$:

$$(a) X(z) = \frac{z}{2z^2 - 3z + 1} \quad |z| < \frac{1}{2}$$

$$(b) X(z) = \frac{z}{2z^2 - 3z + 1} \quad |z| > 1$$

Question 4

4.20. Find the inverse z-transform of

$$X(z) = \frac{z}{z(z-1)(z-2)^2} \quad |z| > 2$$