Concept Question 3-3: How does one determine the poles and zeros of a rational function **X(s)**?

The poles of **X(s)** are the roots of the denominator polynomial set equal to zero.
The zeros of **X(s)** are the roots of the numerator polynomial set equal to zero.

$$\mathbf{X}(\mathbf{s}) = \frac{\mathbf{N}(\mathbf{s})}{\mathbf{D}(\mathbf{s})} = \frac{A(\mathbf{s} - \mathbf{z}_1)(\mathbf{s} - \mathbf{z}_2)\ldots(\mathbf{s} - \mathbf{z}_m)}{(\mathbf{s} - \mathbf{p}_1)(\mathbf{s} - \mathbf{p}_2)\ldots(\mathbf{s} - \mathbf{p}_n)}$$