HOMEWORK #13 prob 5 solution

Ex: Plot the poles and zeros of $V(s)$ in the s plane.

$$V(s) = \frac{s^2 - s - 6}{s^3 + 6s^2 + 34s}$$

Sol'n: The poles are roots of the denominator, and the zeros are the roots of the numerator.

$$V(s) = \frac{s^2 - s - 6}{s^3 + 6s^2 + 34s} = \frac{(s-3)(s+2)}{s(s+3+j5)(s+3-j5)}$$

The zeros are 3 and –2. The poles are 0, –3–j5, –3+j5.

We denote the poles with `x`'s and the zeros with `o`'s in the complex s-plane: