HOMEWORK #13 prob 4 solution

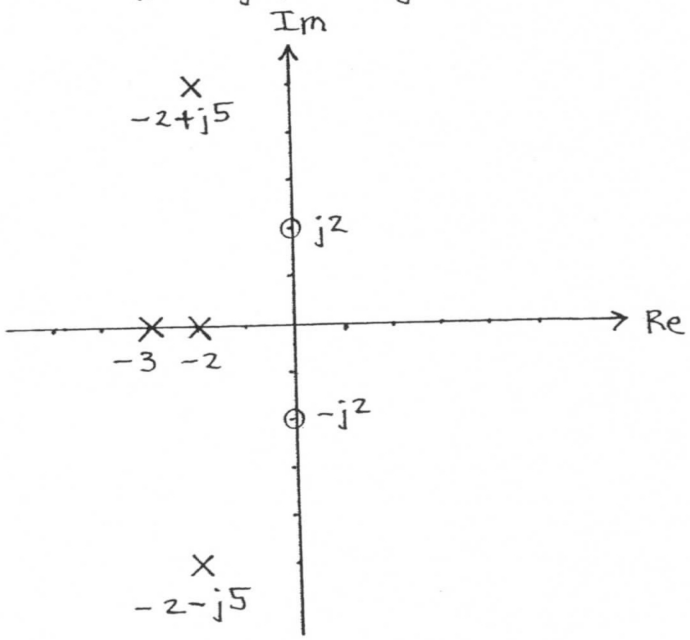
EX: Plot and label the values of the poles and zeros of $V(s)$ in the s plane.

$$V(s) = \frac{3s^2 + 12}{[(s+2)^2 + 5^2](s^2 + 5s + 6)}$$

SOL'N:

We factor the numerator and denominator of $V(s)$ to find root terms that correspond to poles (denominator) and zeros (numerator).

$$V(s) = \frac{3(s+j2)(s-j2)}{(s+2+j5)(s+2-j5)(s+2)(s+3)}$$



Note: The scaling factor of 3 in the numerator is missing in the pole-zero diagram. Thus, we are unable to determine $V(s)$ from poles and zeros alone. (The gain term may be added to the diagram as a footnote.)