Example 3

$$G(s) = \frac{s-1}{(s+2)(s^2 - s + 1)} = \frac{s-1}{s^3 + s^2 - s + 2}$$

Routh:

char. poly. $s^3 + s^2 - s + 2 + K(s-1)$

$\qquad\qquad s^2 + s^2 + (K-1)s + 2 - K \qquad$ (3rd-order)

— stable if and only if

$$K - 1 > 0$$
$$2 - K > 0$$
$$K - 1 > 2 - K$$

— stability range is $3/2 < K < 2$