Example, continued

Root locus: $\left\{ -\frac{1}{2} \pm \frac{\sqrt{1-4K}}{2} \ : 0 \leq K < \infty \right\} \subset \mathbb{C}$

- as K increases from 0, the poles start to move

$$1 - 4K > 0 \quad \Longrightarrow \quad \text{2 real roots}$$
$$K = 1/4 \quad \Longrightarrow \text{1 real root } s = -1/2$$