In [1]:

```
import sympy as sp

s = sp.Symbol('s')

H_s = 1 / (s**2 + 3*s + 2)

denominator = s**2 + 3*s + 2
factored_denominator = sp.factor(denominator)
print("Factored Denominator:", factored_denominator)

t = sp.Symbol('t')
h_t = sp.inverse_laplace_transform(H_s, s, t)
print("Inverse Laplace Transform, h(t):", h_t)

poles = sp.solve(denominator, s)
print("Poles of the system:", poles)
```

```
Factored Denominator: (s + 1)*(s + 2)
Inverse Laplace Transform, h(t): exp(-t)*Heaviside(t) - exp(-2*t)*Heaviside(t)
Poles of the system: [-2, -1]
```