ICE1 First-order Response and its Parameters

Define given TF:
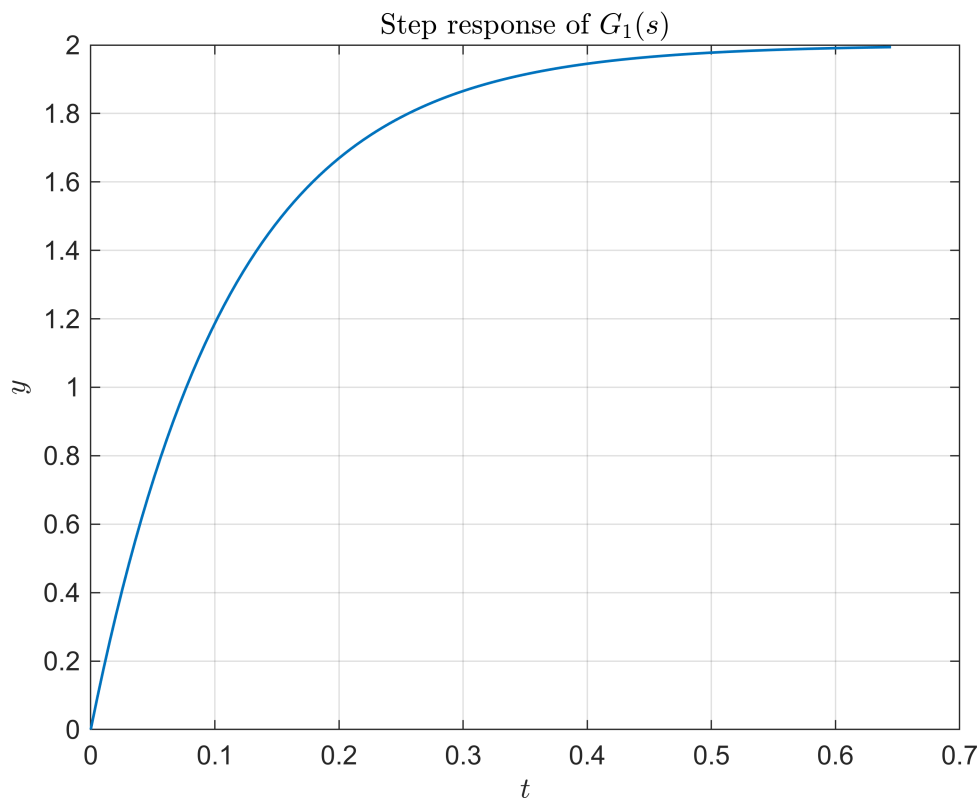
```matlab
a=9; b=3; % polynomial coefficient
NUM = [b]; % numerator
DEN = [1, a]; % denominator
Dyn = tf(NUM,DEN); % TF as matlab object
```

Generate step response:

```matlab
M = 6; % input amplitude
[y,t] = step(M*Dyn); % step response
```

Plot the response:

```matlab
plot(t,y, 'LineWidth', 1)
grid
xlabel('$t$', 'Interpreter', 'latex')
ylabel('$y$', 'Interpreter', 'latex')
title('Step response of $G_1(s)$', 'Interpreter', 'latex')
```


Validate steady-state value:

```
SS = y(end)
```

SS = 1.9940

Verify time constant:

```
tau = interp1(y, t, 0.63 * SS)
```

tau = 0.1099

```
xline(tau, 'r')
yline(0.63 * SS, 'r')
```


Step response of $G_1(s)$