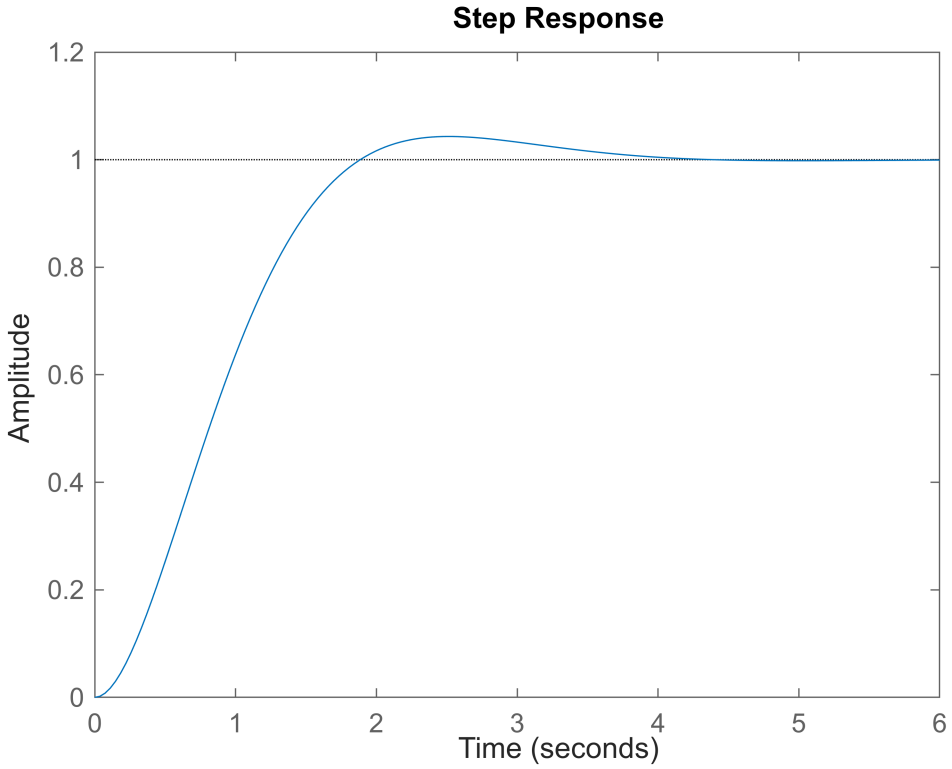
Criteriul Modului - KESSLER

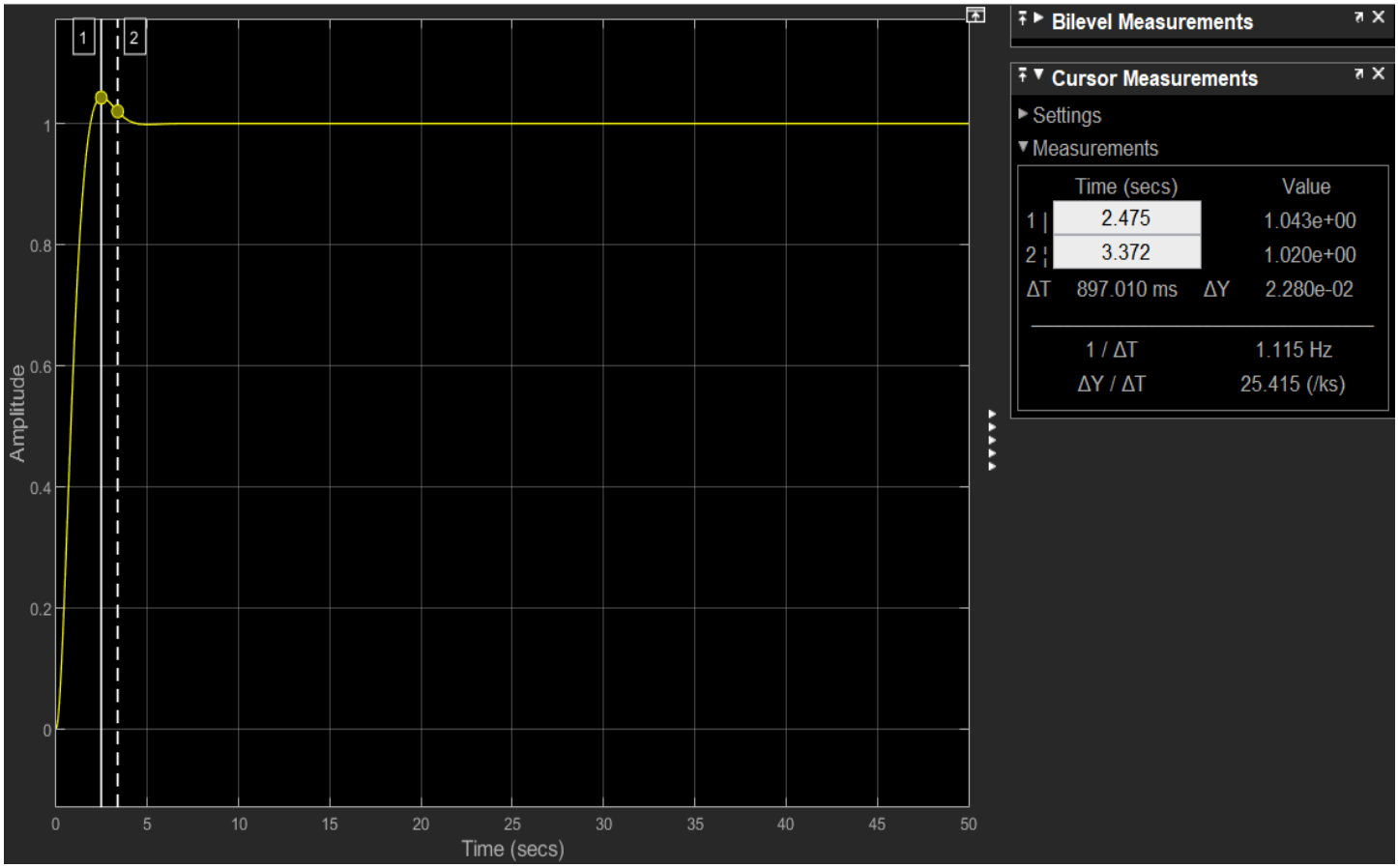
Cu parte fixată:

```
Hf = tf(0.1, conv([0.4 1], [6 1]));
Hr = tf([6 1], [0.08 0]);
Hcl = feedback(Hr * Hf, 1);
step(Hcl)
```




```
stepinfo(Hcl)
```

```
ans = struct with fields:
         RiseTime: 1.2156
    TransientTime: 3.3730
     SettlingTime: 3.3730
      SettlingMin: 0.9034
      SettlingMax: 1.0432
        Overshoot: 4.3210
       Undershoot: 0
             Peak: 1.0432
         PeakTime: 2.5052
```



a. Suprareglaj:

Mp = (1.043 - 1) * 100 = 4.3%

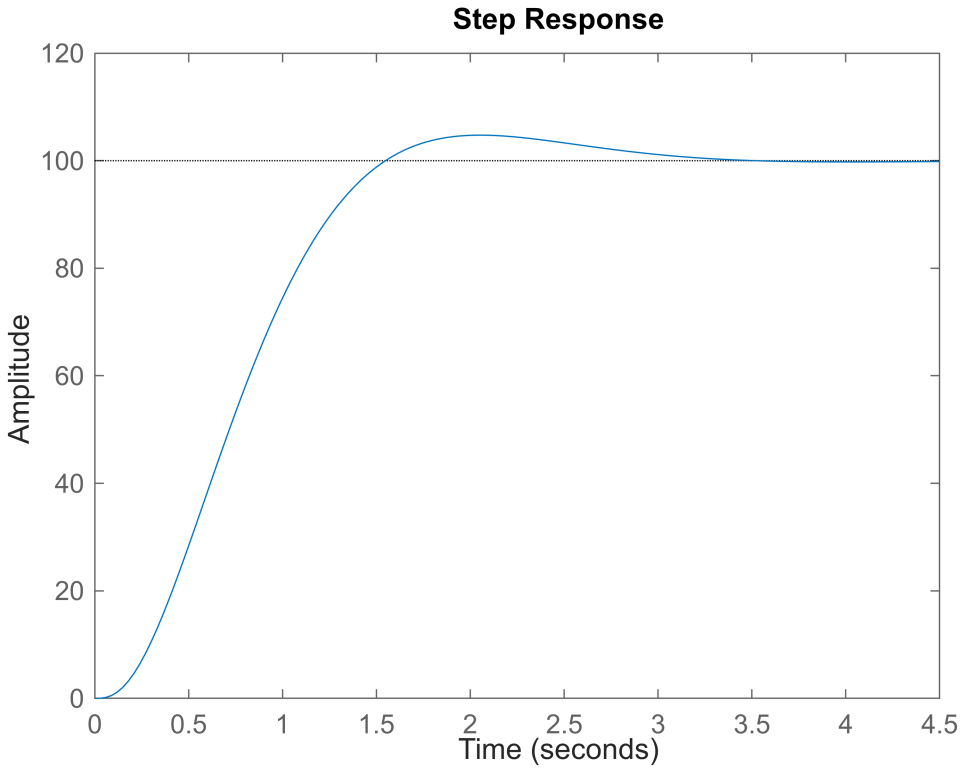
b. Timp de răspuns:

tr = 3.37 s

Te = 0.4; tr = 8.4 * 0.4 = 3.36 s

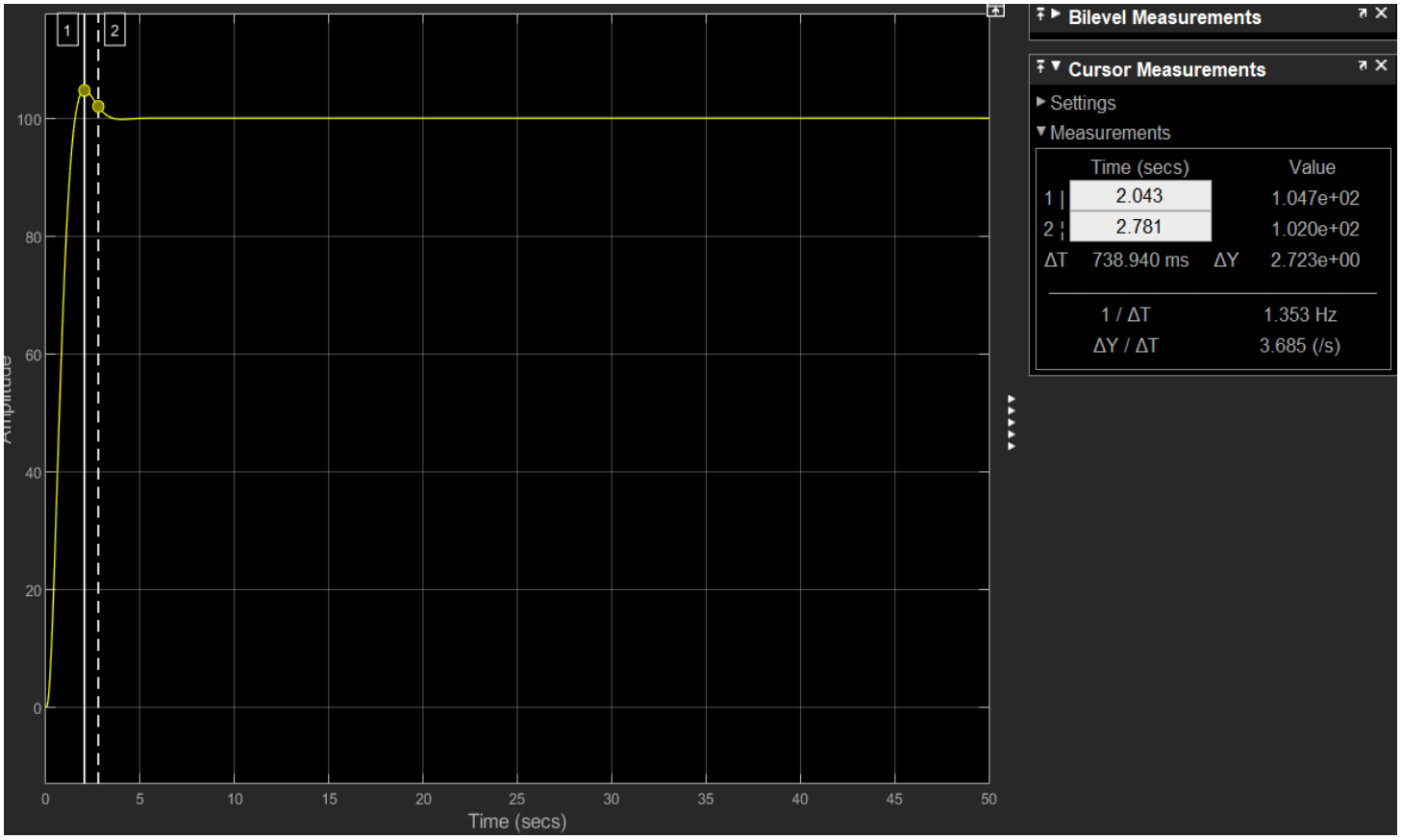
Cu separarea funcțiilor de transfer a componentelor sistemului:

```
Hr = tf([6 1], [0.08 0]);
Hit = tf(2, conv([0.1 1], [6 1]));
Hee = tf(5, [0.2 1]);
Htm = tf(0.01, [0.1 1]);
Hcl = feedback(Hr * Hee * Hit, Htm);
step(Hcl)
```




```
stepinfo(Hcl)
```

```
ans = struct with fields:
         RiseTime: 0.9648
    TransientTime: 2.7798
     SettlingTime: 2.7798
      SettlingMin: 91.3681
      SettlingMax: 104.7509
        Overshoot: 4.7509
       Undershoot: 0
             Peak: 104.7509
         PeakTime: 2.0663
```



a. Suprareglaj:

Mp = (4.7 - 1) * 100 = 4.7%

b. Timp de răspuns:

tr = 2.78 s

Criteriul simetriei

Cu parte fixată

```
Hf = tf(0.1, conv([0.4 1], [6 1]));
Hr = tf([9.6 7.6 1], [0.128 0 0]);
minreal(Hr)
```

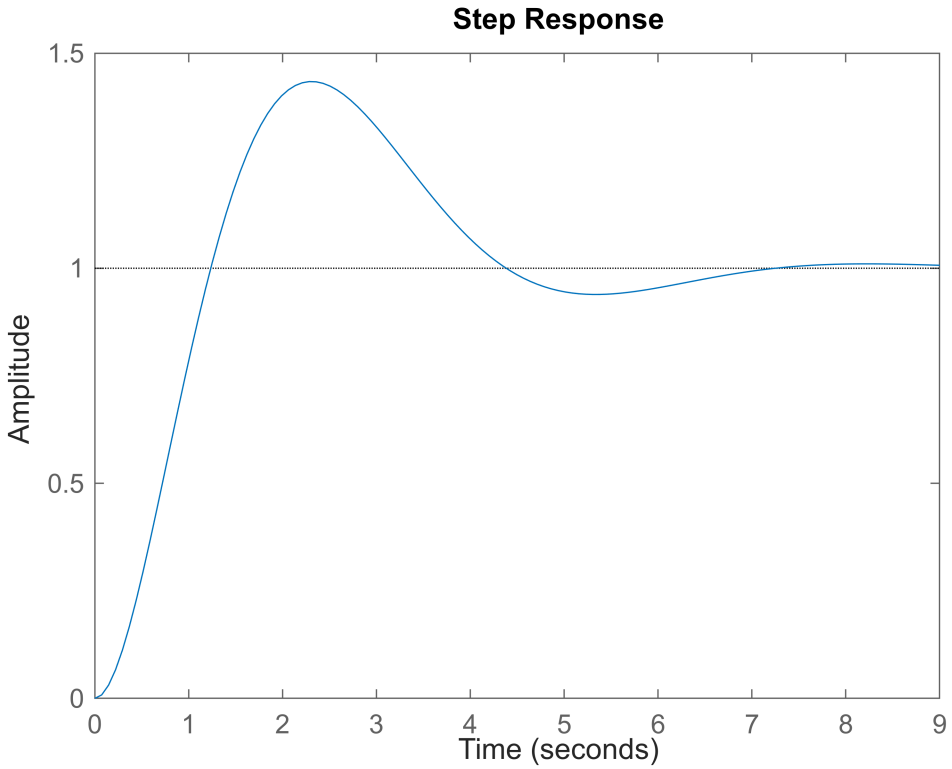
```
ans =

  75 s^2 + 59.38 s + 7.812
  ------------------------
            s^2

Continuous-time transfer function.
Model Properties
```

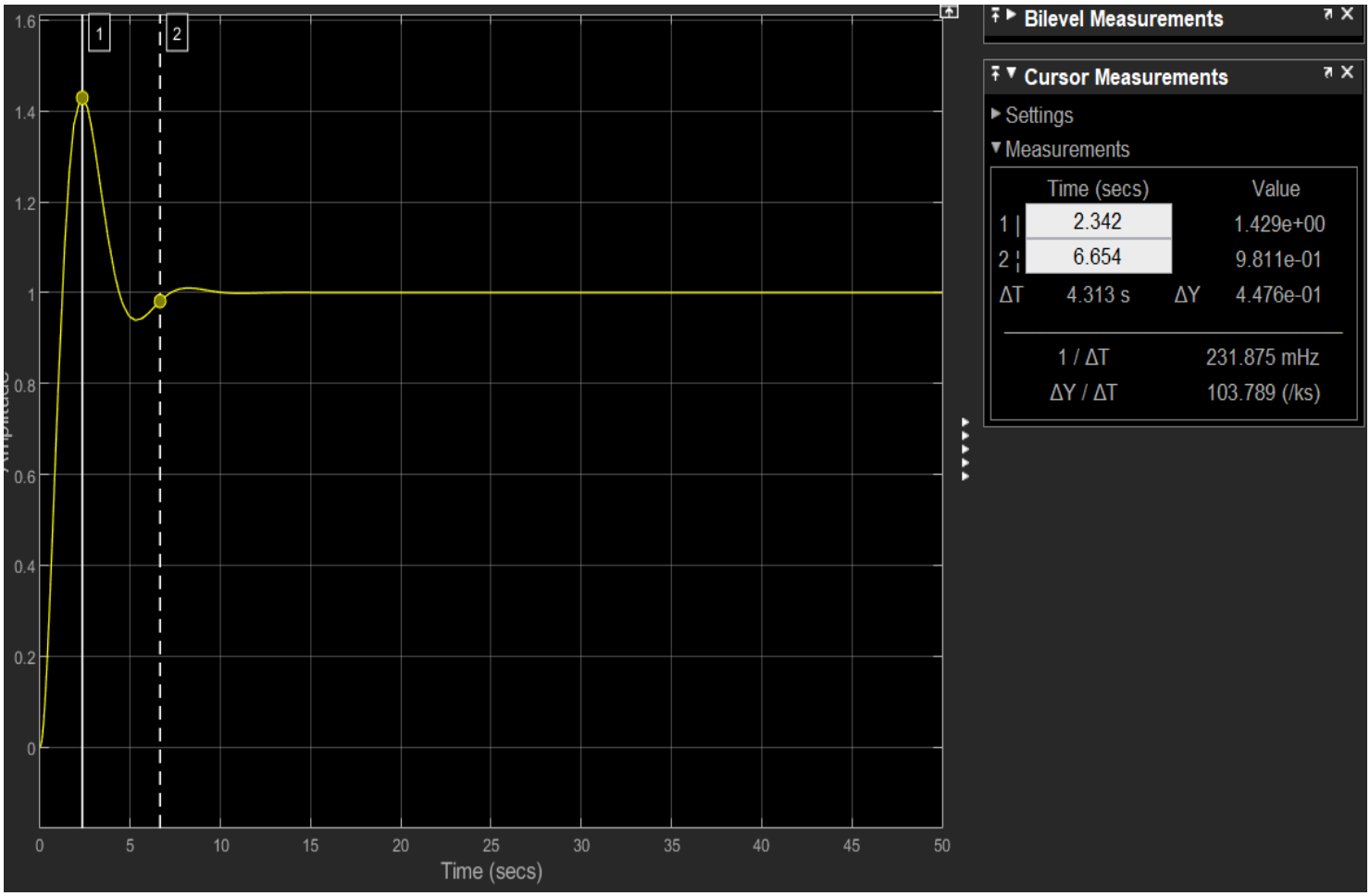
```
Hcl = feedback(Hf * Hr, 1);
```

```
step(Hcl)
```




```
stepinfo(Hcl)
```

```
ans = struct with fields:
          RiseTime: 0.8471
    TransientTime: 6.6204
     SettlingTime: 6.6204
      SettlingMin: 0.9390
      SettlingMax: 1.4339
        Overshoot: 43.3919
       Undershoot: 0
             Peak: 1.4339
         PeakTime: 2.2842
```



a. Suprareglaj:

Mp = (1.43 - 1) * 100 = 43%

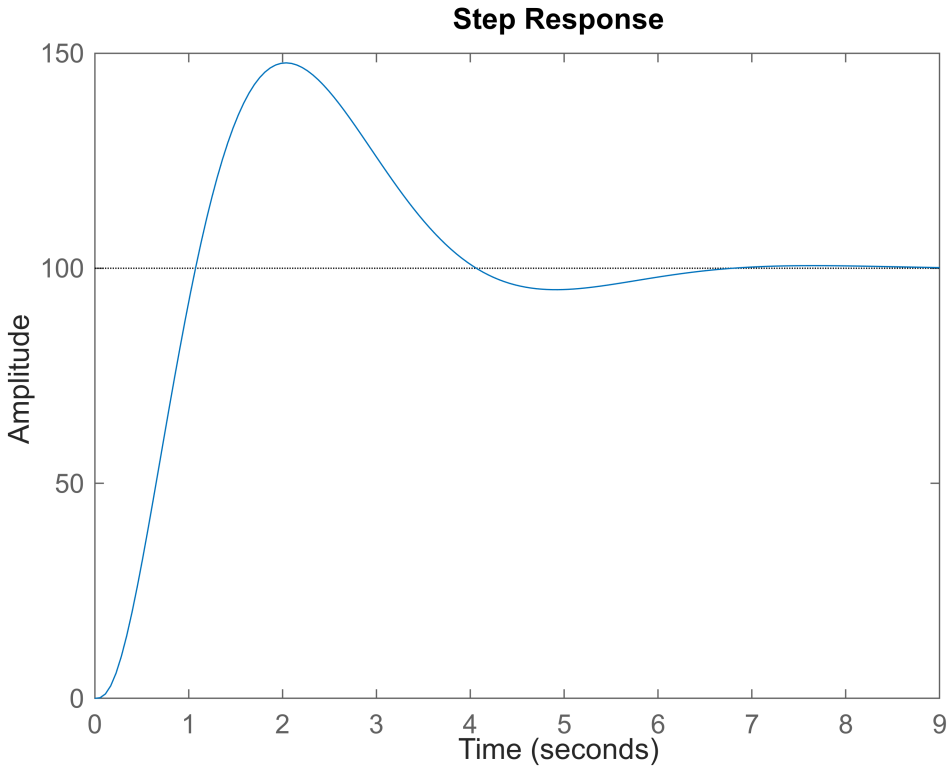
b. Timp de răspuns:

tr = 6.6s

Te = 0.4; tr = 16.5 * Te = 6.6s

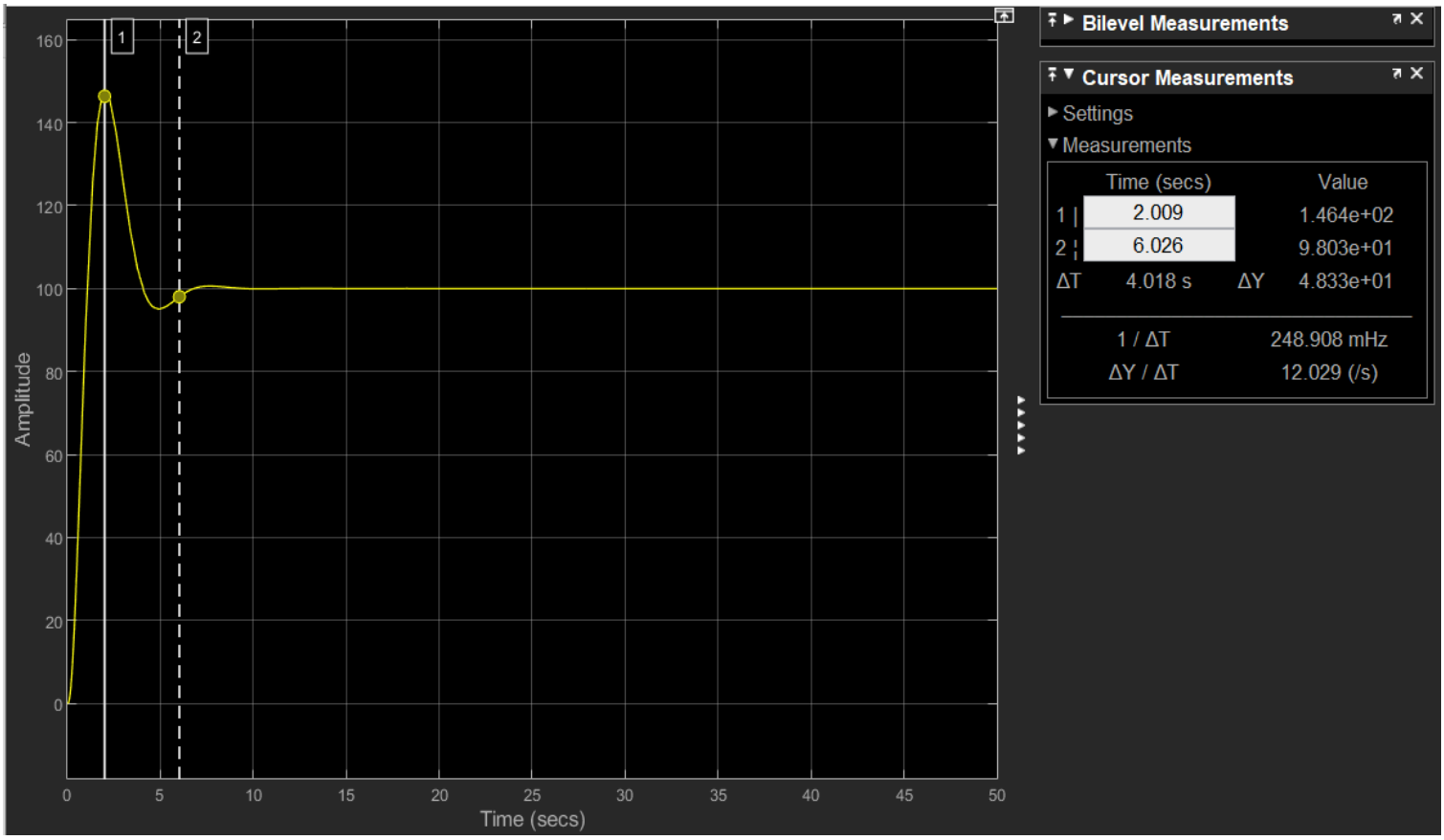
Cu separarea funcțiilor de transfer a componentelor sistemului:

```
Hr = tf([9.6 7.6 1], [0.128 0 0]);
Hit = tf(2, conv([0.1 1], [6 1]));
Hee = tf(5, [0.2 1]);
Htm = tf(0.01, [0.1 1]);
Hcl = feedback(Hr * Hee * Hit, Htm);
step(Hcl)
```




```
stepinfo(Hcl)
```

```
ans = struct with fields:
         RiseTime: 0.6954
    TransientTime: 6.0146
     SettlingTime: 6.0146
      SettlingMin: 94.2912
      SettlingMax: 147.7456
        Overshoot: 47.7456
       Undershoot: 0
             Peak: 147.7456
         PeakTime: 2.0398
```



a. Suprareglaj:

Mp = (146 - 100) * 100 = 46%

b. Timp de răspuns:

tr = 6.02s