

```
In[12]:= Quit[]
```

```
In[1]:= << Graphics`Graphics`
```

```
(* Sist forzato *)
```

```
In[2]:= G[s_] =  $\frac{1}{m s^2 + r s + k}$ ;
```

```
In[3]:= s = I ω;
```

```
In[32]:= Clear[r]
```

```
In[33]:= m = 1;
```

```
         r = 2;
```

```
         k = 100;
```

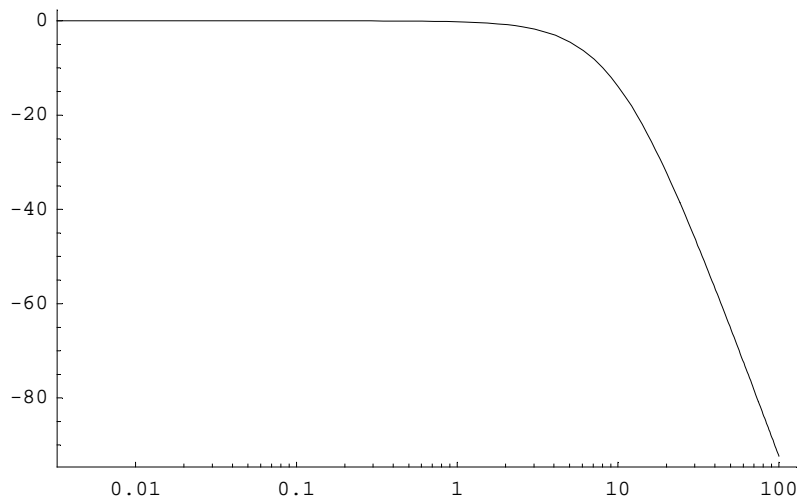
```
         rc = 2  $\sqrt{k m}$ ;
```

```
In[37]:= ξ =  $\frac{r}{rc}$  // N
```

```
Out[37]= 0.1
```

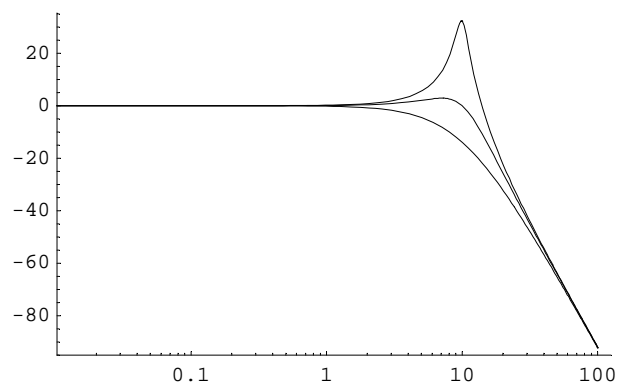
## Ampiezza della FRF

```
In[27]:= g3 = LogLinearPlot[20 Log[Abs[k G[s]]], {ω, 0, 100}, PlotPoints → 100]
```



```
Out[27]= - Graphics -
```

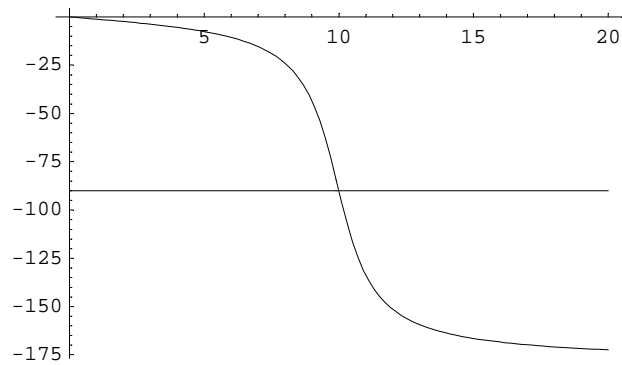
```
In[28]:= Show[g1, g2, g3]
```



```
Out[28]= - Graphics -
```

## Fase della FRF

```
In[40]:= Plot[{-90, 180 / π Arg[k G[s]]}, {ω, 0, 20}, PlotPoints → 100, PlotRange → All]
```



```
Out[40]= - Graphics -
```

## Trasmissibilità

```
In[20]:= Quit[]
```

## ■ Controllo con forza proporzionale

```
In[9]:= T[s_] = 
$$\frac{r s + k}{m s^2 + r (1 + kp) s + k (1 + kp)}$$
;
```

```
In[10]:= s = I ω;
```

```
In[11]:= m = 1
          r = 2
          k = 100
```

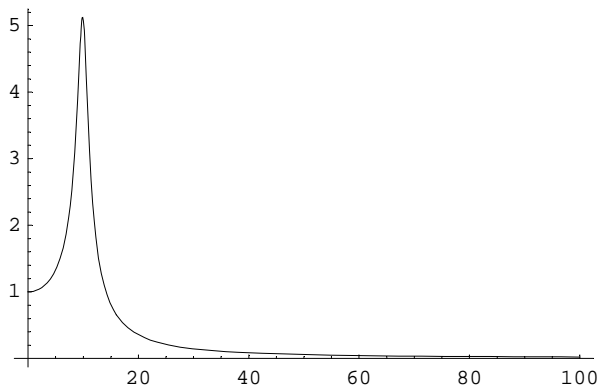
```
Out[11]= 1
```

```
Out[12]= 2
```

```
Out[13]= 100
```

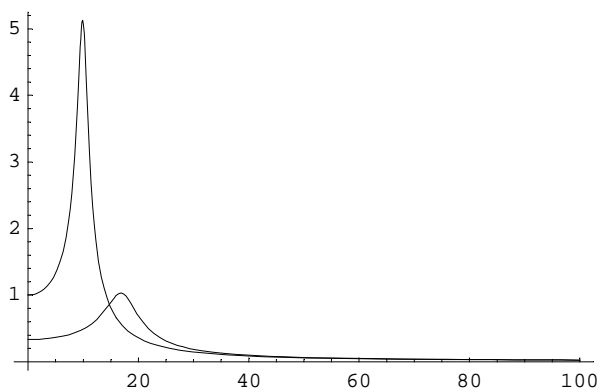
```
In[8]:= kp = 0;
```

```
In[14]:= g1 = Plot[Abs[T[s]], {ω, 0, 100}]
```



```
Out[14]= - Graphics -
```

```
In[15]:= Show[g2, g1]
```



```
Out[15]= - Graphics -
```

## ■ Skyhook damping

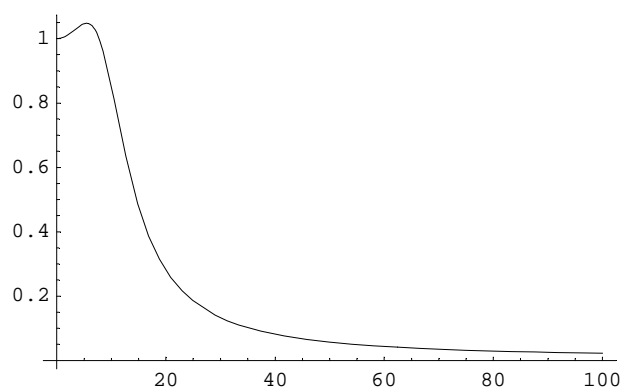
```
In[38]:= T[s_] = 
$$\frac{r s + k}{m s^2 + r (1 + kp) s + k};$$

```

```
In[39]:= s = I ω;
```

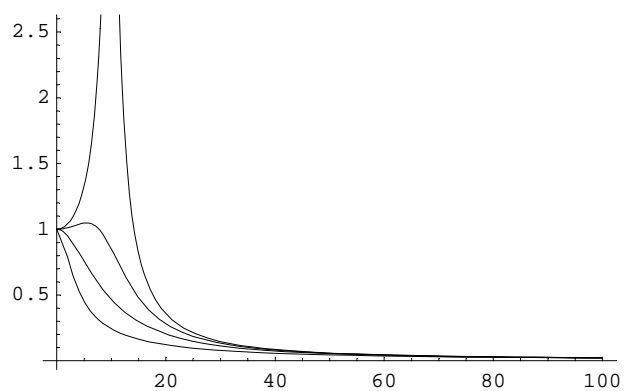
```
In[40]:= m = 1; r = 2; k = 100; kp = 5;
```

```
In[41]:= g5 = Plot[Abs[T[s]], {ω, 0, 100}]
```



```
Out[41]= - Graphics -
```

```
In[42]:= Show[g0, g5, g10, g20]
```



```
Out[42]= - Graphics -
```