$m := 4$

$k := 2500$

$c := 120$

$\omega := \sqrt{\frac{k}{m}} = 25$

$\xi := \frac{c}{2 \cdot m \cdot \omega} = 0.6$ $\xi := \frac{c}{2 \cdot \sqrt{k \cdot m}} = 0.6$

$F_0 := 80$

$\Omega := 10$

$F(t) := F_0 \sin(\Omega \cdot t)$

$T_f := \frac{2 \cdot \pi}{\Omega} = 0.628$

$T_{max} := 2 \cdot T_f = 1.257$

$\Delta t := 0.001$

$t := 0 , \Delta t .. T_{max}$

$\delta_{st} := \frac{F_0}{k} = 0.032$

$r := \frac{\Omega}{\omega} = 0.4$

$X := \frac{F_0}{\sqrt{\left(k - m \cdot \Omega^2\right)^2 + (c \cdot \Omega)^2}} = 0.033$

$X_{bis} := \frac{\delta_{st}}{\sqrt{\left(1 - r^2\right)^2 + (2 \cdot \xi \cdot r)^2}} = 0.033$

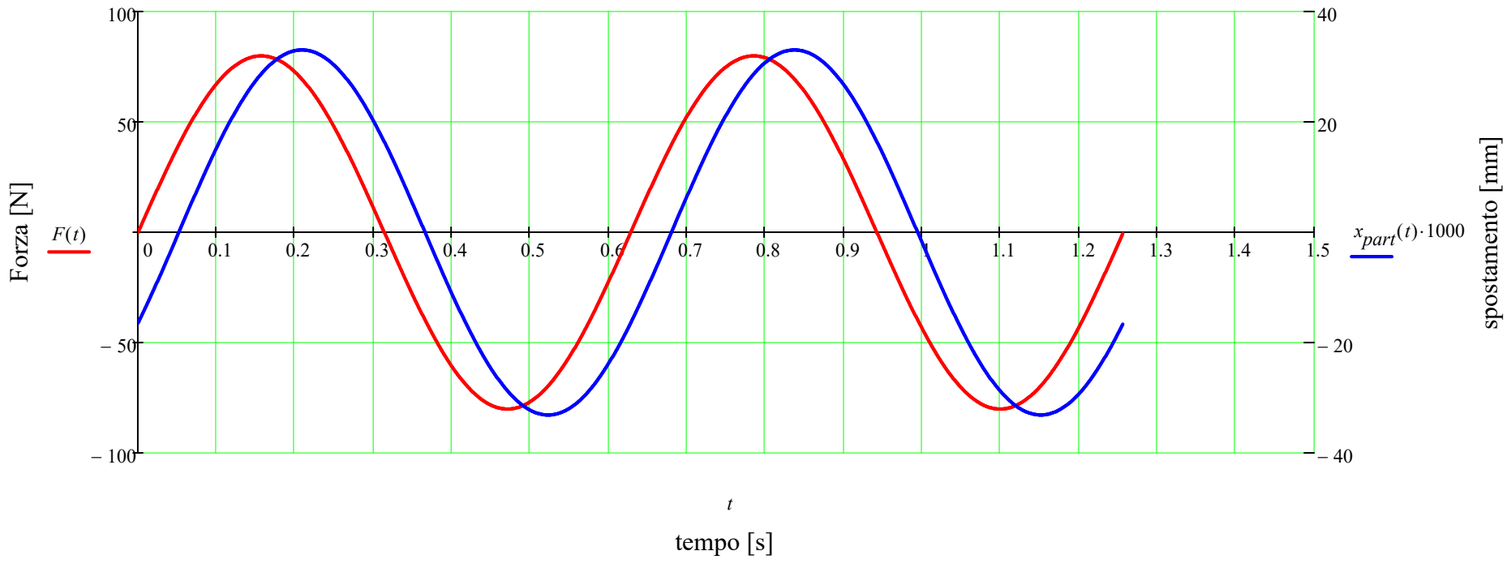
$\varphi := angle\left[\left(k - m \cdot \Omega^2\right), c \cdot \Omega\right] = 29.745 \cdot deg$

$\varphi_{bis} := angle\left[\left(1 - r^2\right), 2 \cdot \xi \cdot r\right] = 29.745 \cdot deg$

$\varphi = 0.519 \cdot rad$

$\varphi_{bis} = 0.519 \cdot rad$

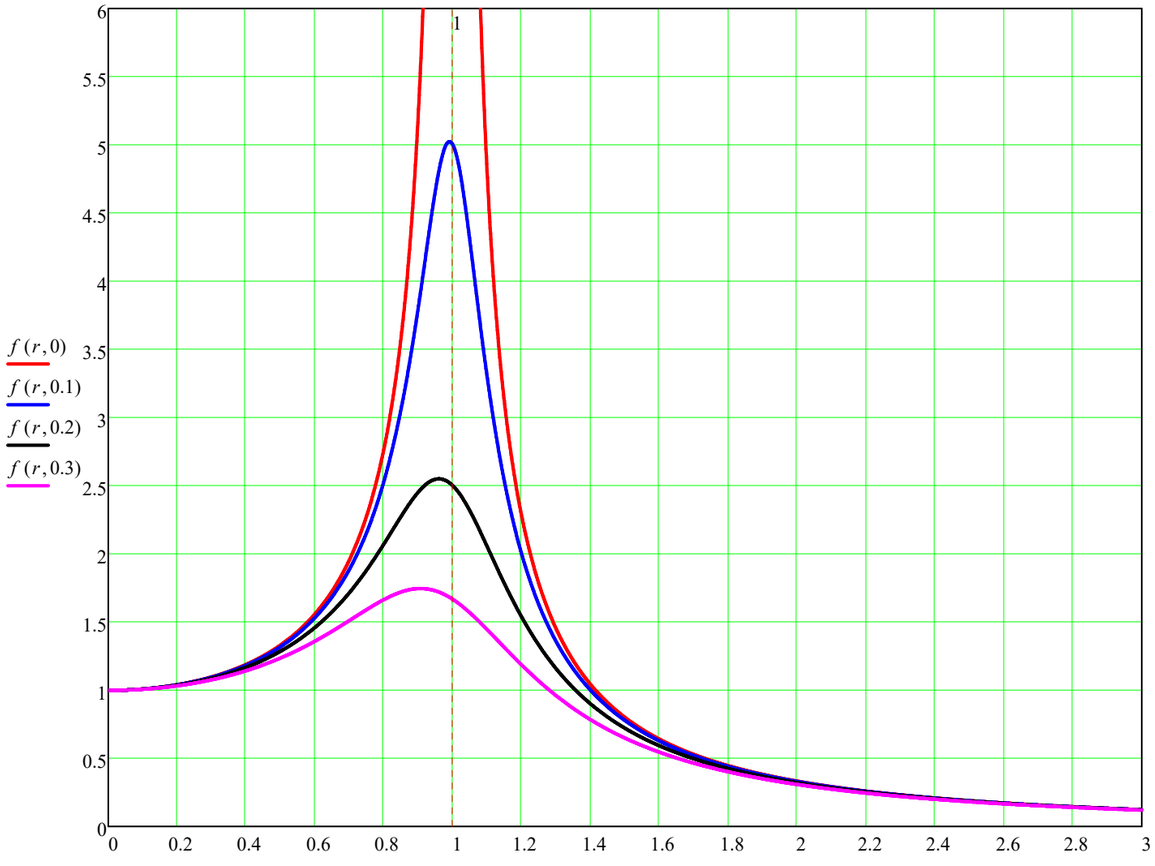
$x_{part}(t) := X \cdot \sin(\Omega \cdot t - \varphi)$



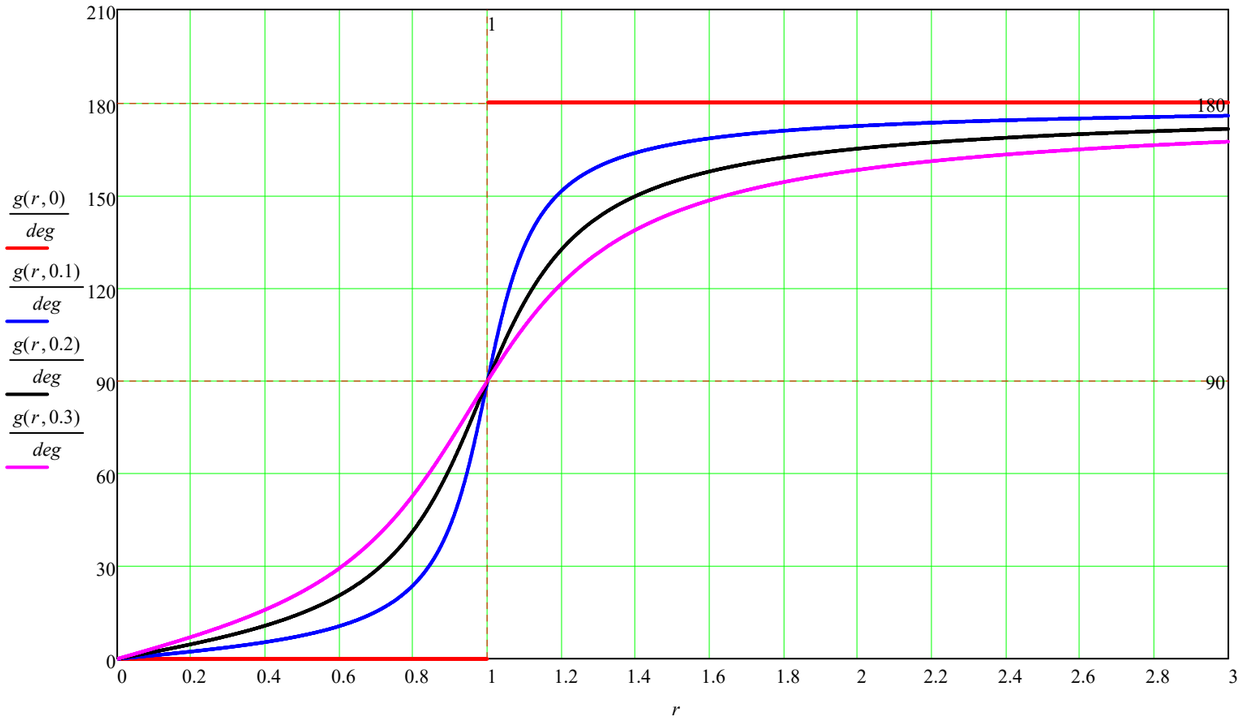
Grafici della risposta in frequenza su scale adimensionali

$$f(r,\xi) := \frac{1}{\sqrt{\left(1 - r^2\right)^2 + (2\cdot\xi\cdot r)^2}} \qquad \xi = 0.6$$

$r := 0, 0.001 .. 3$



$$g(r, \xi) := angle\left[\left(1 - r^2\right), 2 \cdot \xi \cdot r\right]$$


210
180
150
120
90
60
30
0
1
180
90
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
1.8
2
2.2
2.4
2.6
2.8
3
r
g(r, 0) / deg
g(r, 0.1) / deg
g(r, 0.2) / deg
g(r, 0.3) / deg