b) $A = \dfrac{F_0/m}{|\omega_0^2 - \omega^2 + c\omega^4|} \Longrightarrow \dfrac{A}{f} = \dfrac{A}{(F_0/m)} = \dfrac{1}{|\omega_0^2 + c\omega^4 - \omega^2|}$

In the limits $\omega \to 0$ and $\omega \to \infty$, we get respectively:

1) $\omega \longrightarrow 0$: $\left(\dfrac{A}{f}\right)(\omega = 0) = \dfrac{1}{\omega_0^2}$

2) $\omega \longrightarrow \infty$: $\left(\dfrac{A}{f}\right)(\omega \to \infty) = 0$

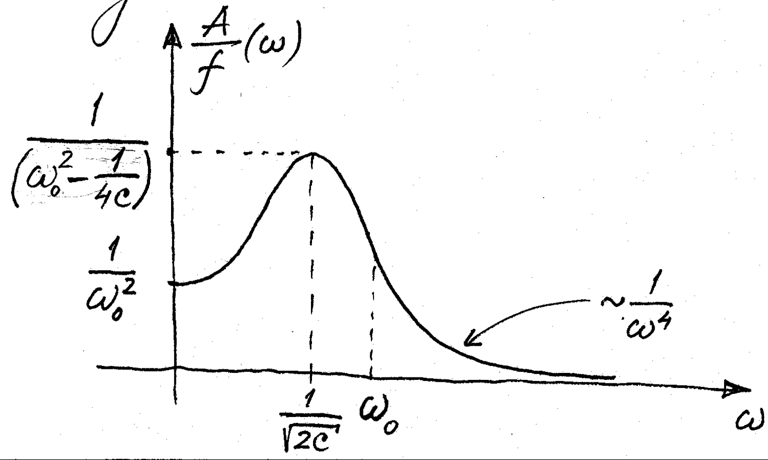
To understand the behavior in between, we have to study whe the denominator of A/f has zeroes:

$$c\omega^4 - \omega^2 + \omega_0^2 = 0 \Longrightarrow \omega = \pm\sqrt{\frac{1 \pm \sqrt{1 - 4c\omega_0^2}}{2c}}$$

We see that there are <u>2 DISTINCT CASES</u>:

$\boxed{\text{I.}}$ $\underline{c > \dfrac{1}{4\omega_0^2}}$:

The function $c\omega^4 - \omega^2 + \omega_0^2$ has NO REAL ZEROES; therefore, $A/f(\omega)$ has NO POLES. For positive ω's we get:



$\underline{\varphi(\omega) \equiv 0}$

for ALL ω's.