$$\gamma = \frac{|\Delta m|}{|\dot{\theta}_m|}$$

$$\tan 2\theta_m = \frac{\Delta \sin 2\theta}{\Delta \cos 2\theta - \frac{V_c}{2}}$$

$$\sec^2 2\theta_m \cdot 2\dot{\theta}_m = \frac{\Delta \sin 2\theta}{\left(\Delta \cos 2\theta - \frac{V_c}{2}\right)^2}\left(+\frac{\dot{V}_c}{2}\right)$$

$$\frac{(\Delta \sin 2\theta)^2 + \left(\Delta \cos 2\theta - \frac{V_c}{2}\right)^2}{\left(\Delta \cos 2\theta - \frac{V_c}{2}\right)^2} \cdot 2\dot{\theta}_m = \frac{\Delta \sin 2\theta}{\left(\Delta \cos 2\theta - \frac{V_c}{2}\right)^2} \cdot \frac{\dot{V}_c}{2}$$

$$\dot{\theta}_m = \frac{\Delta \sin 2\theta}{(\Delta \sin 2\theta)^2 + \left(\Delta \cos 2\theta - \frac{V_c}{2}\right)^2} \cdot \frac{\dot{V}_c}{4}$$

$$\dot{\theta}_m = \frac{\Delta \sin\theta}{\Delta_m^2} \cdot \frac{\dot{V}_c}{4}$$

$$\gamma = \frac{|\Delta m|}{|\dot{\theta}_m|} = \frac{\Delta_m^3}{\Delta \sin\theta} \frac{\not 4}{\dot{V}_c}$$

$$\gamma_{res} = \frac{(\Delta \sin\theta)^3}{\Delta \sin\theta} \cdot \frac{4}{\dot{V}_c} = \Delta^2 \sin^2\theta \, \frac{4}{\dot{V}_c}$$

$$\Delta \cos 2\theta = \frac{V_c}{2}_{res} \Rightarrow \gamma_{res} = \Delta \sin^2\theta \, \frac{V_c}{2\cos 2\theta} \, \frac{4}{\dot{V}_c}$$

$$\gamma_{res} = \left| 2\Delta \frac{\sin^2 2\theta}{\cos 2\theta} \frac{1}{\left(\frac{1}{V_c}\frac{dV_c}{dt}\right)} \right|$$

$$= \left| \frac{\Delta m^2}{2E} \frac{\sin^2 2\theta}{\cos 2\theta} \cdot \left(\frac{1}{V_c}\frac{dV_c}{dt}\right)^{-1} \right|$$

$$\gamma_{res} = \left| 2\Delta \frac{\sin^2 2\theta}{\cos 2\theta} \frac{1}{\left(\frac{1}{V_c}\frac{dV_c}{dt}\right)} \right|$$

$$= \left| \frac{\Delta m^2}{2E} \frac{\sin^2 2\theta}{\cos 2\theta} \cdot \left(\frac{1}{V_c}\frac{dV_c}{dt}\right)^{-1} \right|$$

$$\tan 2\theta_m = \frac{\Delta \sin 2\theta}{\Delta \cos 2\theta - \frac{V_c}{2}}$$

$$\sec^2 2\theta_m \cdot 2\dot{\theta}_m = \boxed{\quad \cdots \quad}$$