

$$t_{i+1} = t_i + \frac{2\pi}{M^{1/2}} \left(\frac{p_i}{1 - e_i^2} \right)^{3/2} \left[1 - (1 - e_i^2)^{-1} \left(\frac{M}{p_i} \right)^{5/2} f(e_i) + \dots \right]$$