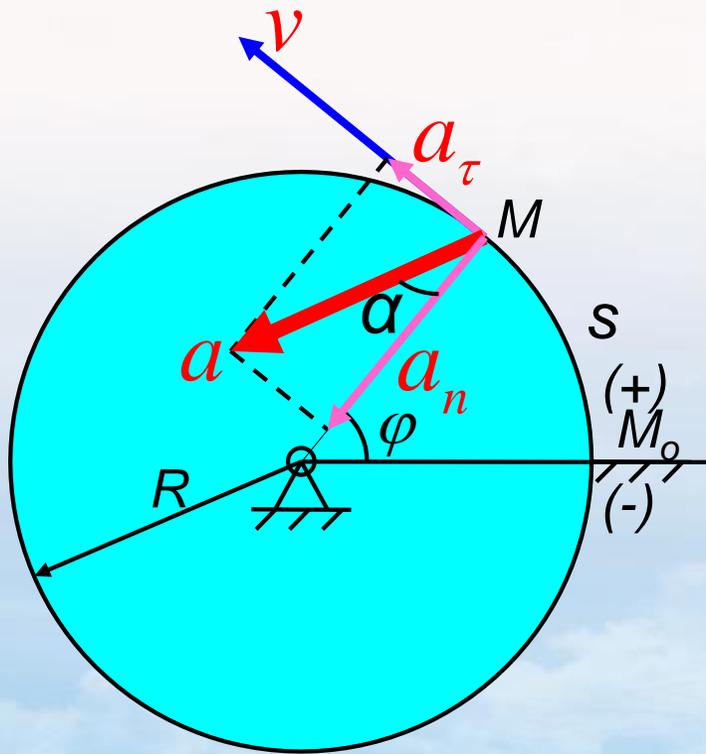


例题二



例题二

飞轮以 $\varphi = 2t^2$ 规律转动（ φ 以rad计）。其半径 $R=50\text{cm}$ 。试求飞轮边缘上一点 M 的速度和加速度。



$$\text{解: } s = R \cdot \varphi = 100t^2$$

$$v = \frac{ds}{dt} = 200t \text{ cm/s}$$

$$a_\tau = \frac{dv}{dt} = 200 \text{ cm/s}^2$$

$$a_n = \frac{v^2}{\rho} = \frac{(200t)^2}{50} = 800t^2 \text{ cm/s}^2$$

$$a = \sqrt{a_\tau^2 + a_n^2} = 200\sqrt{16t^4 + 1} \text{ cm/s}^2$$

$$\tan \alpha = \frac{a_\tau}{a_n} = \frac{1}{4t^2}$$

