第六章 作业

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6-5

设$\angle OCB$ 为 φ，$\angle BOC$ 为 θ, 则

$$\tan\theta = \frac{r\sin\varphi}{h - r\cos\varphi}$$

因此转动方程为

$$\theta_{OA} = \arctan\left(\frac{r\sin\varphi}{h - r\cos\varphi}\right)$$

6-17

$$\omega = \frac{v_A}{R} = 2\boldsymbol{k}\ \text{rad}/s$$

$$\alpha = \frac{a_B^t}{R} = -1.5\boldsymbol{k}\ \text{rad}/s^2$$

$$\alpha_C^t = \alpha \times r_C = -75\sqrt{2}\boldsymbol{i} - 75\sqrt{2}\boldsymbol{j}\ m/s^2$$

$$\alpha_C^n = \omega \times v_C = -200\sqrt{2}\boldsymbol{i} + 200\sqrt{2}\boldsymbol{j}\ m/s^2$$

$$\alpha_C = \alpha_C^t + \alpha_C^n = -388.9\boldsymbol{i} + 176.8\boldsymbol{j}\ m/s^2$$