



1.3 约束和约束力



1. 基本概念

自由体 —— 可以任意运动（获得任意位移）的物体。

非自由体 —— 运动(位移)受到某些限制的物体。

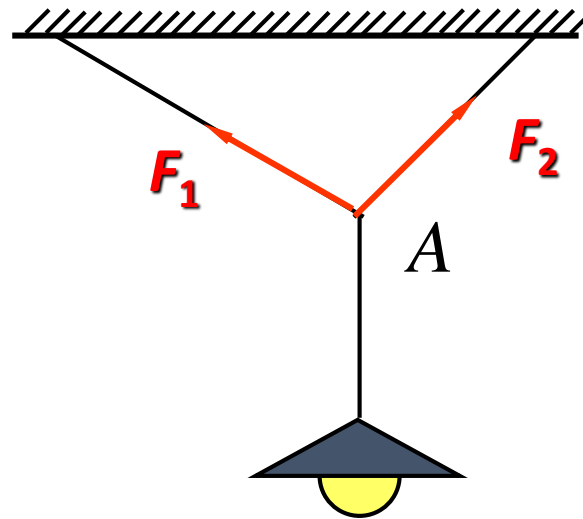
约束 —— 由周围物体所构成的、限制非自由体位移的条件。

约束力 —— 约束对被约束体的作用力。

主动力 —— 约束力以外的力。

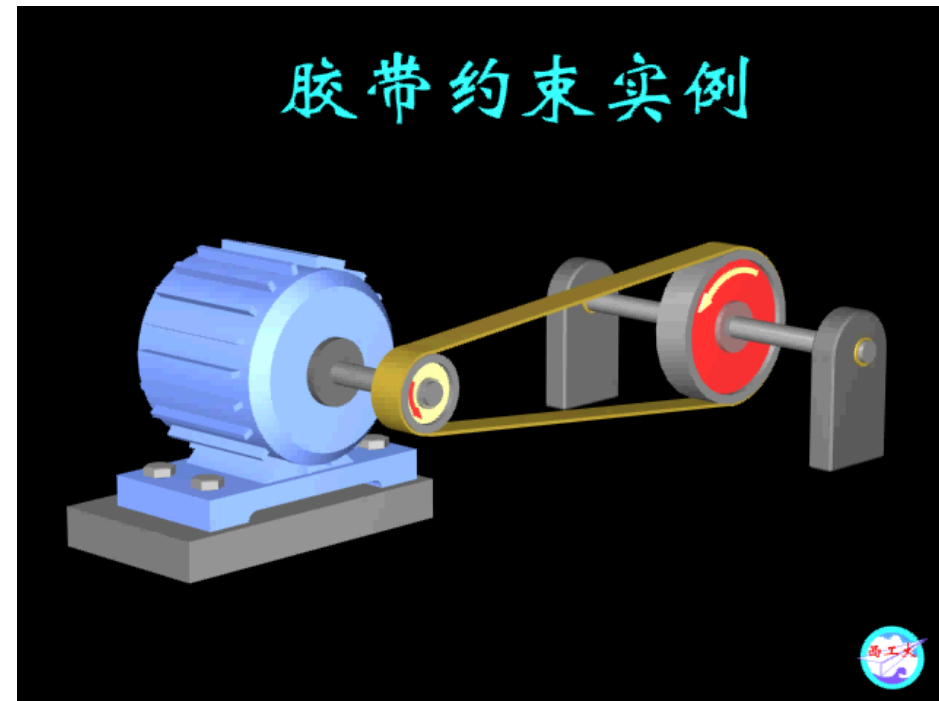
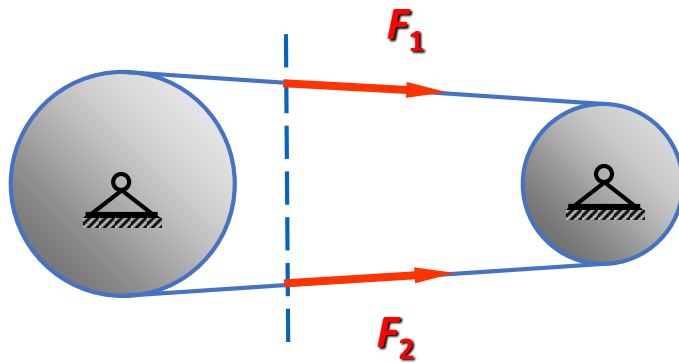


- 柔绳、链条、胶带构成的约束



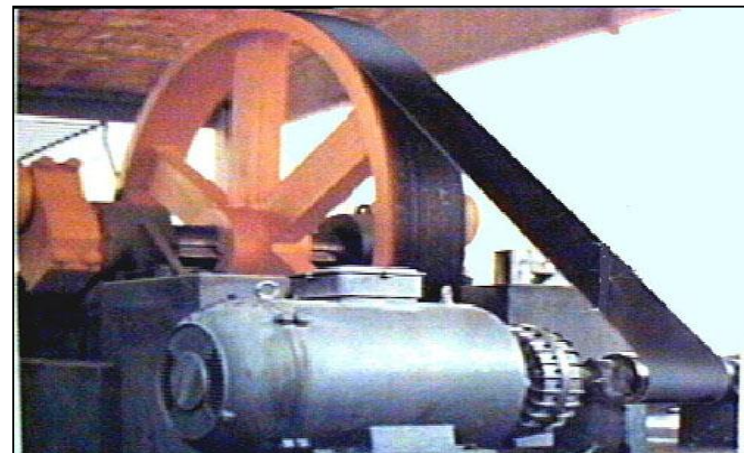
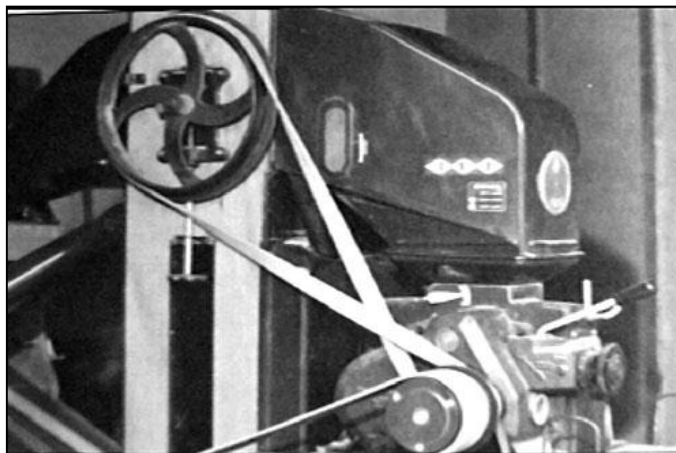
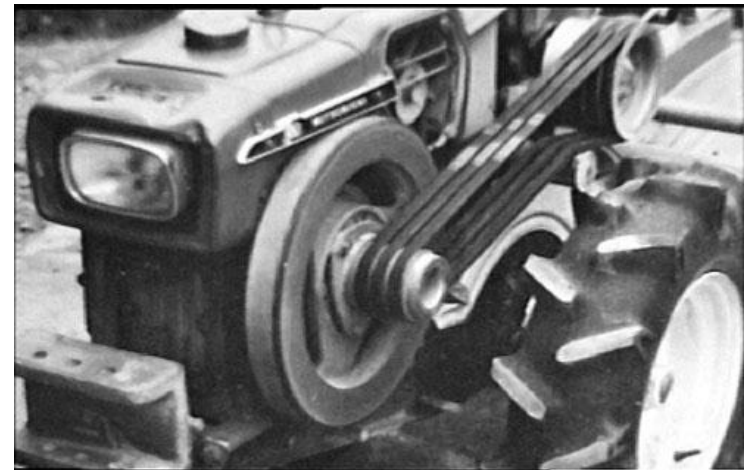


- 柔绳、链条、胶带构成的约束



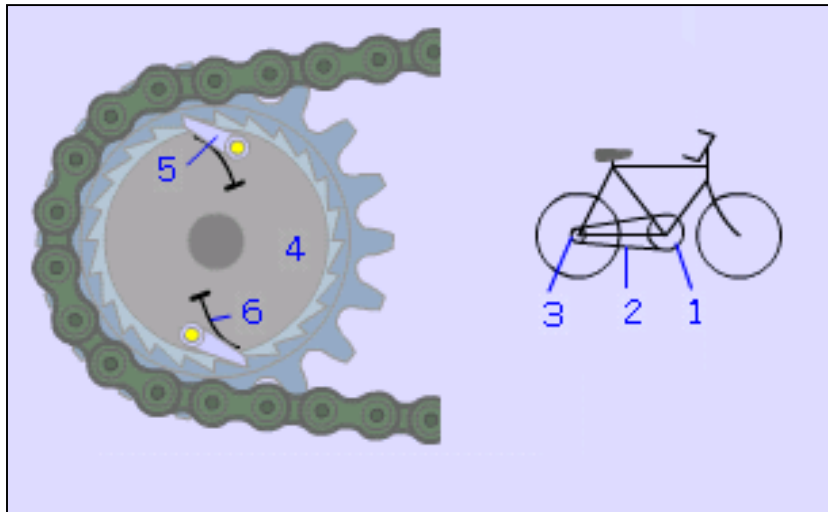


● 胶带构成的约束



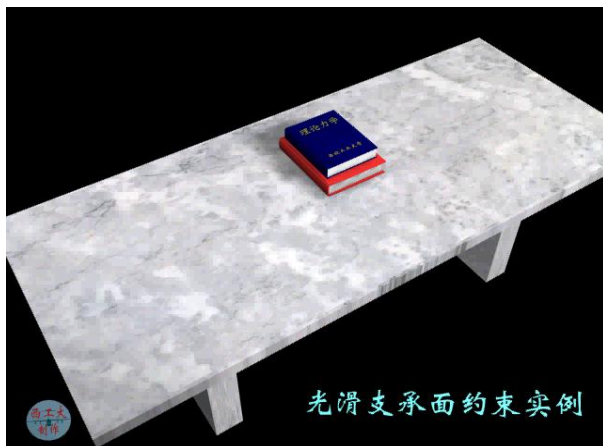
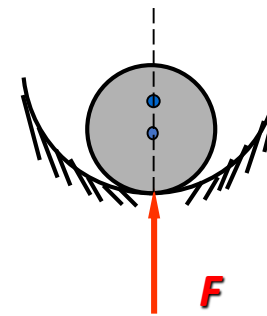
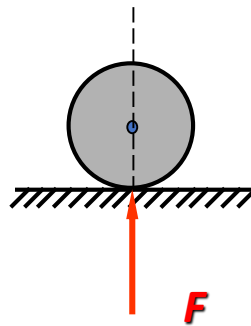
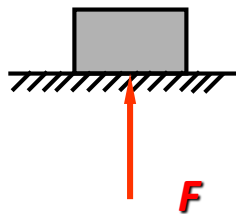


● 链条构成的约束

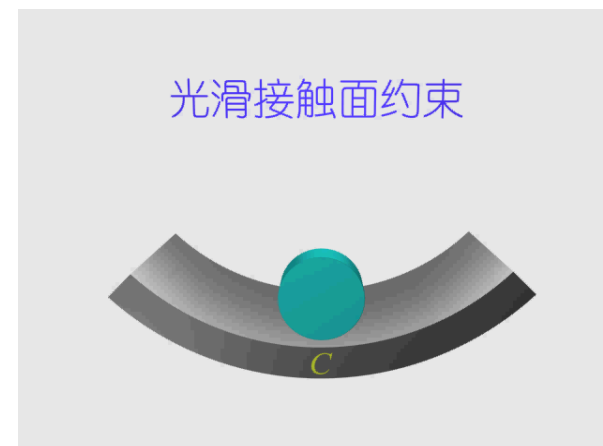
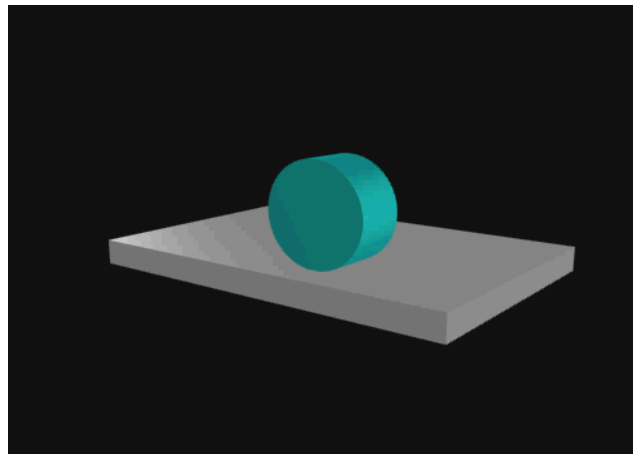


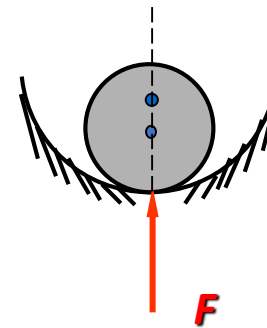
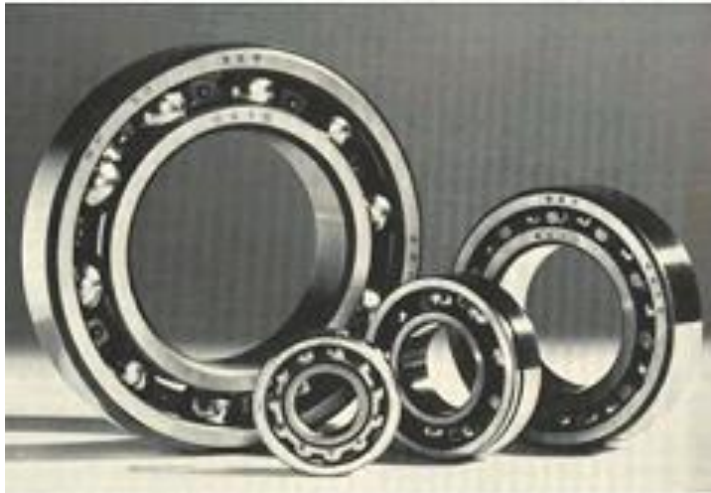
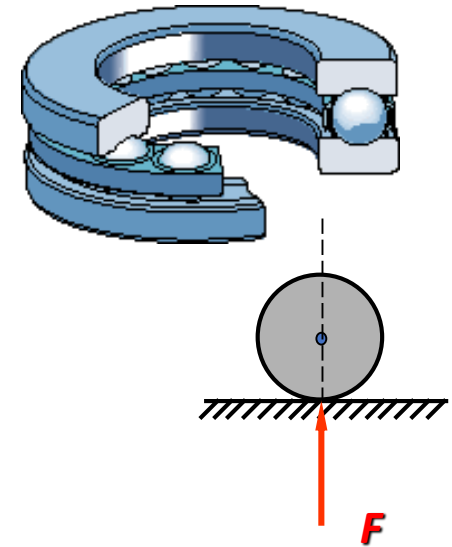
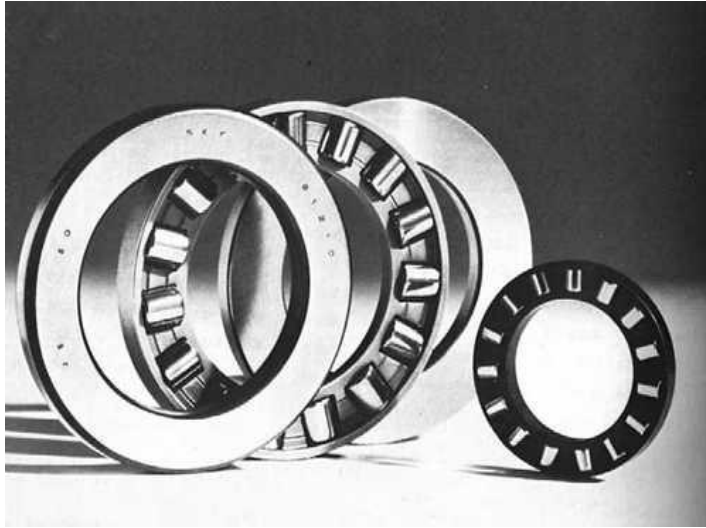


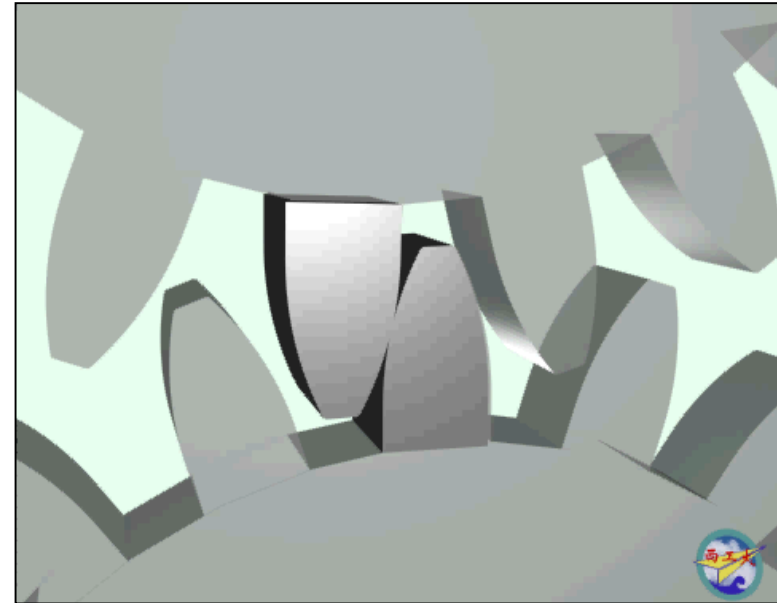
● 光滑接触面约束



光滑支承面约束实例



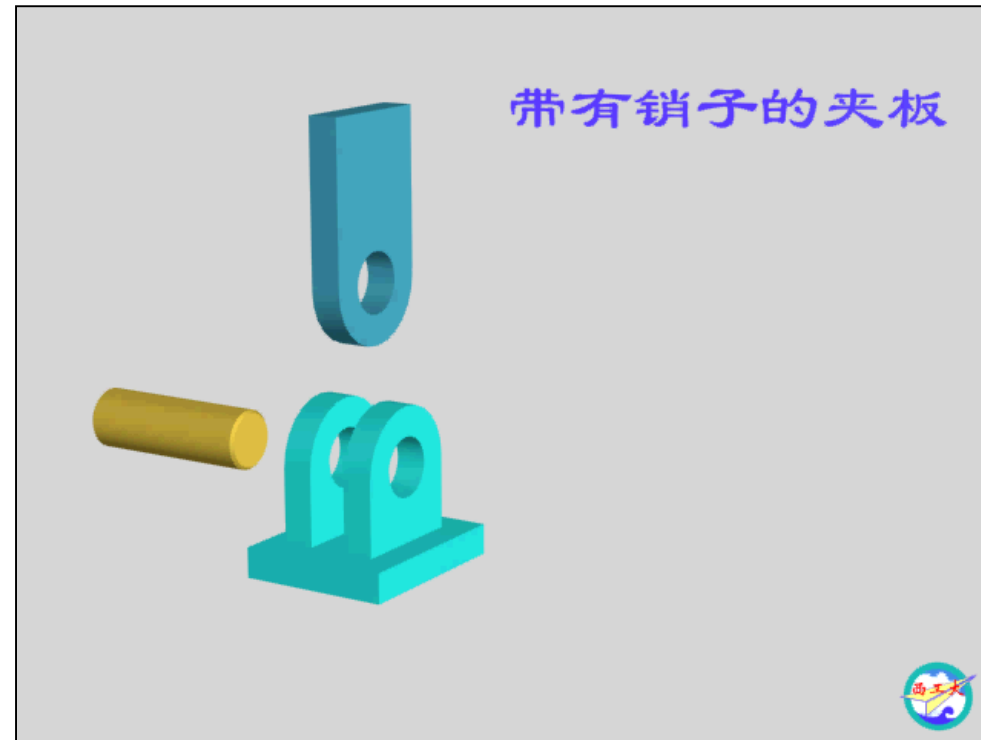
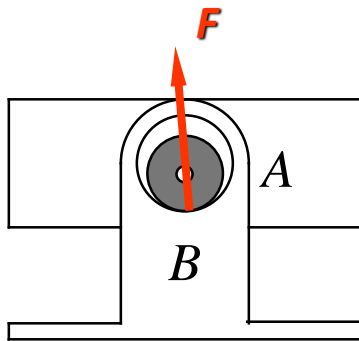
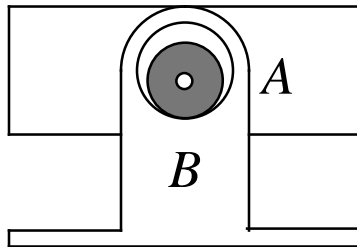




光滑接触面约束实例



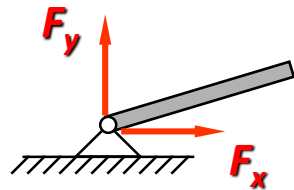
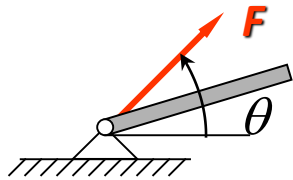
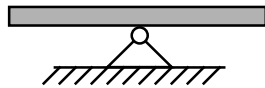
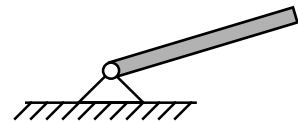
● 光滑圆柱铰链约束





● 光滑圆柱铰链约束

固定铰链支座



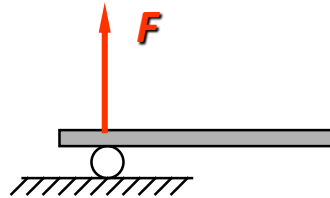
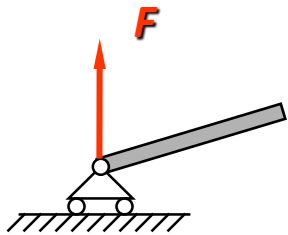
固定铰链支座





● 光滑圆柱铰链约束

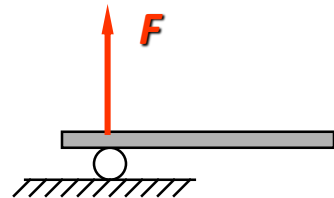
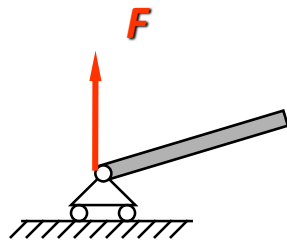
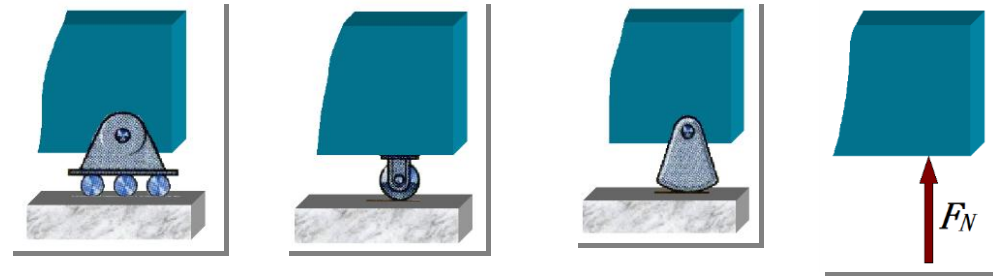
活动铰链支座





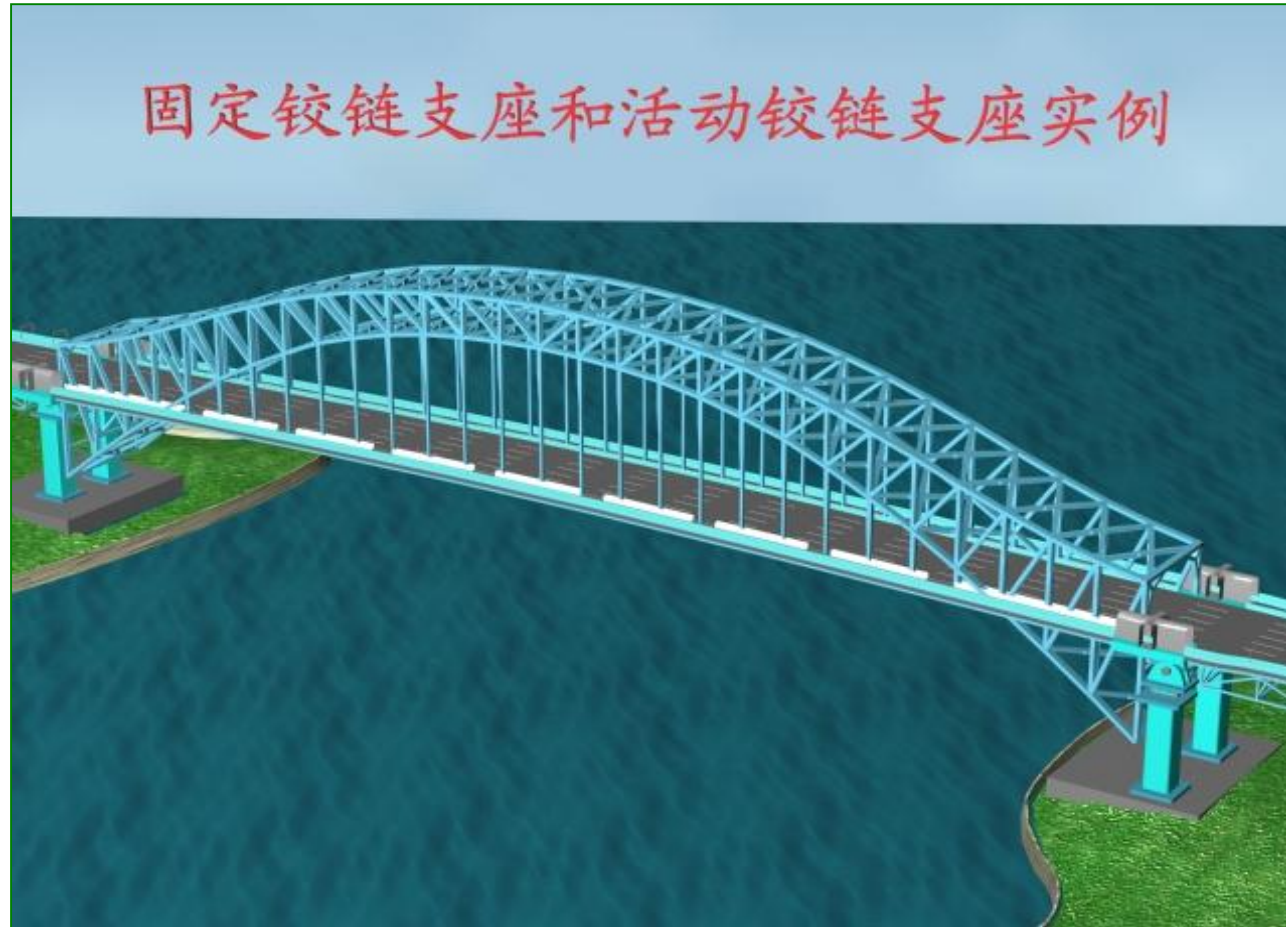
● 光滑圆柱铰链约束

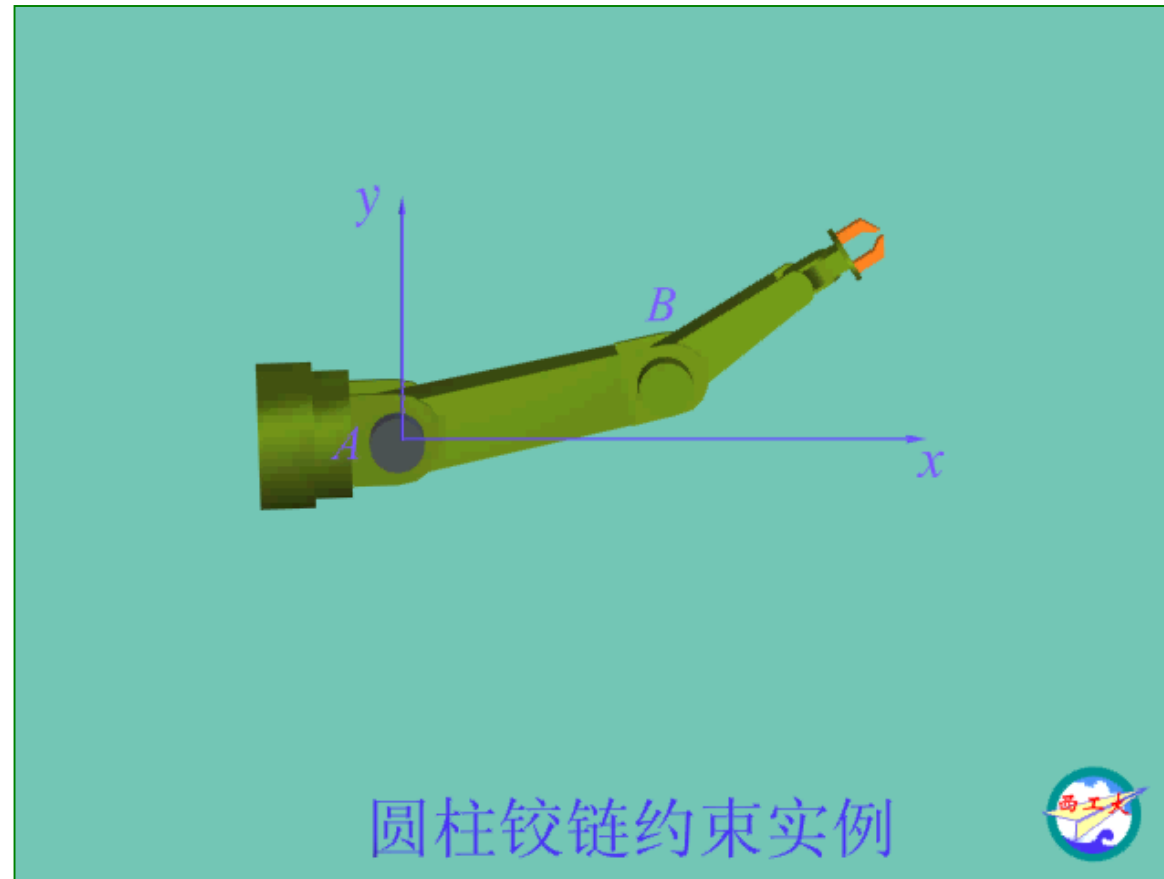
活动铰链支座



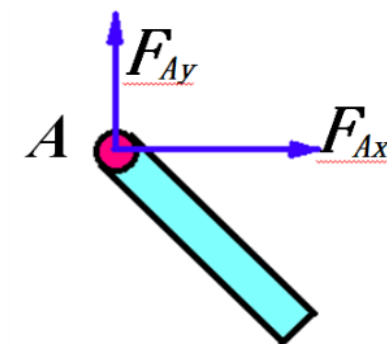
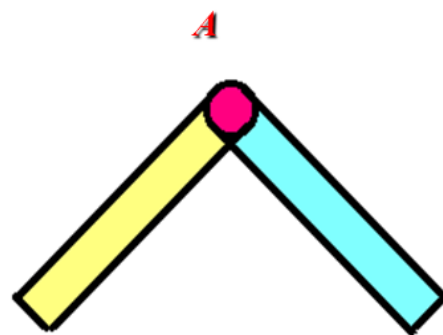
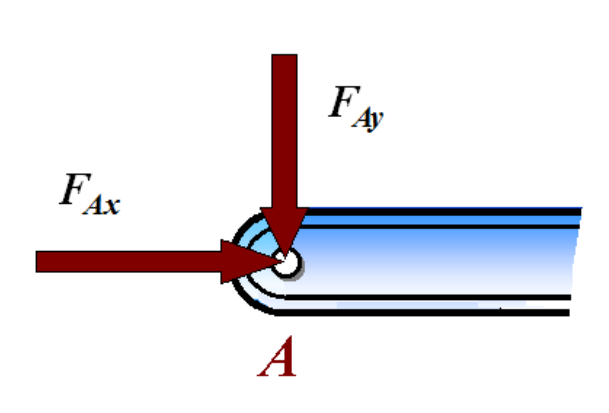
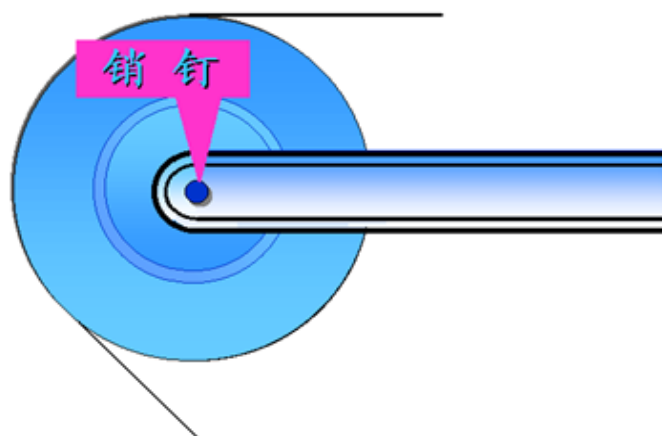


固定铰链支座和活动铰链支座实例



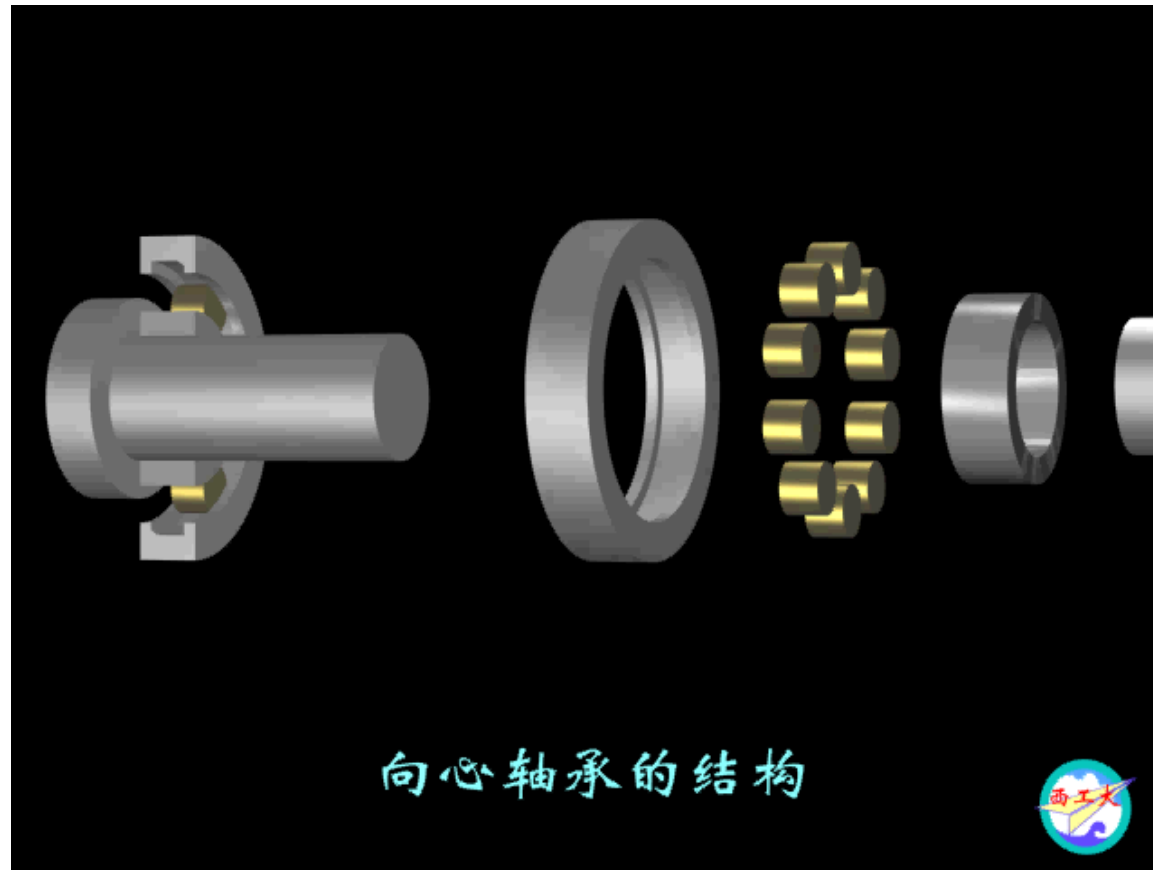


光滑圆柱铰链约束实例

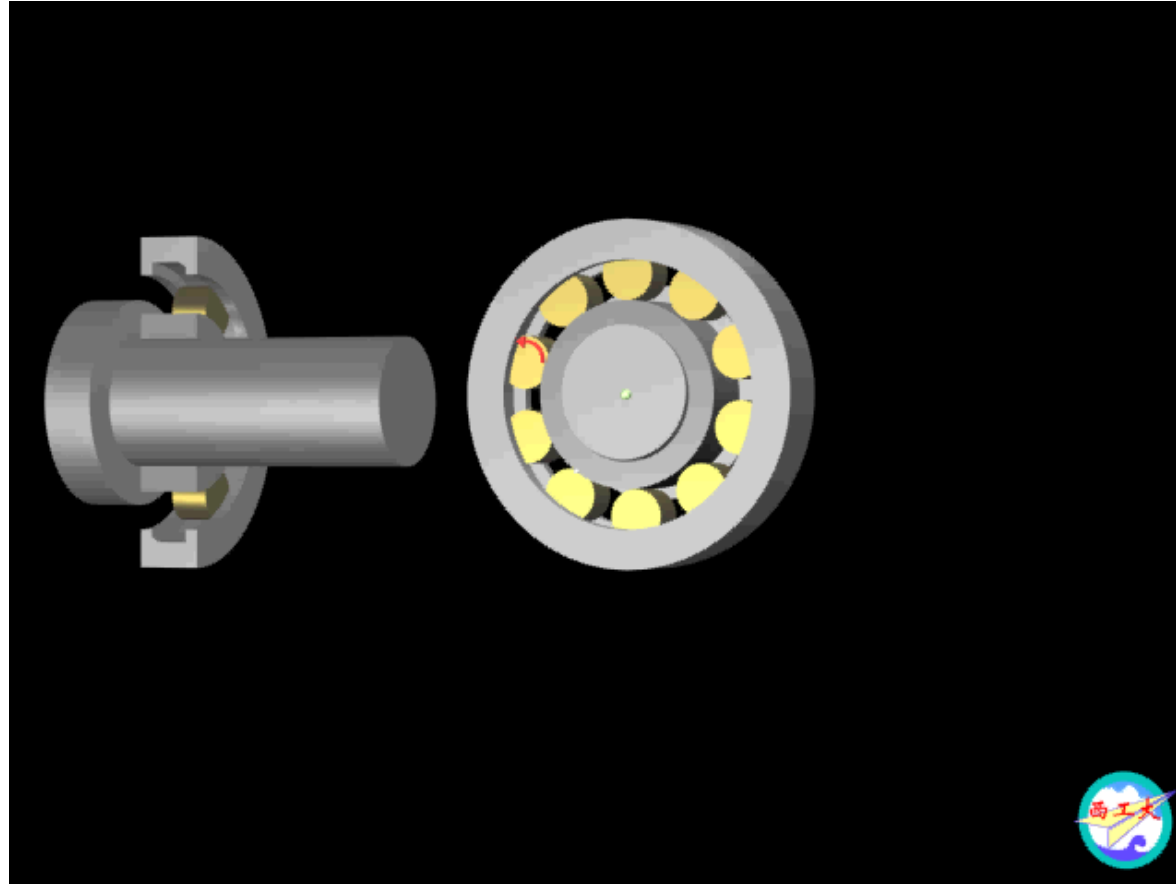




光滑圆柱铰链约束实例——蝶铰



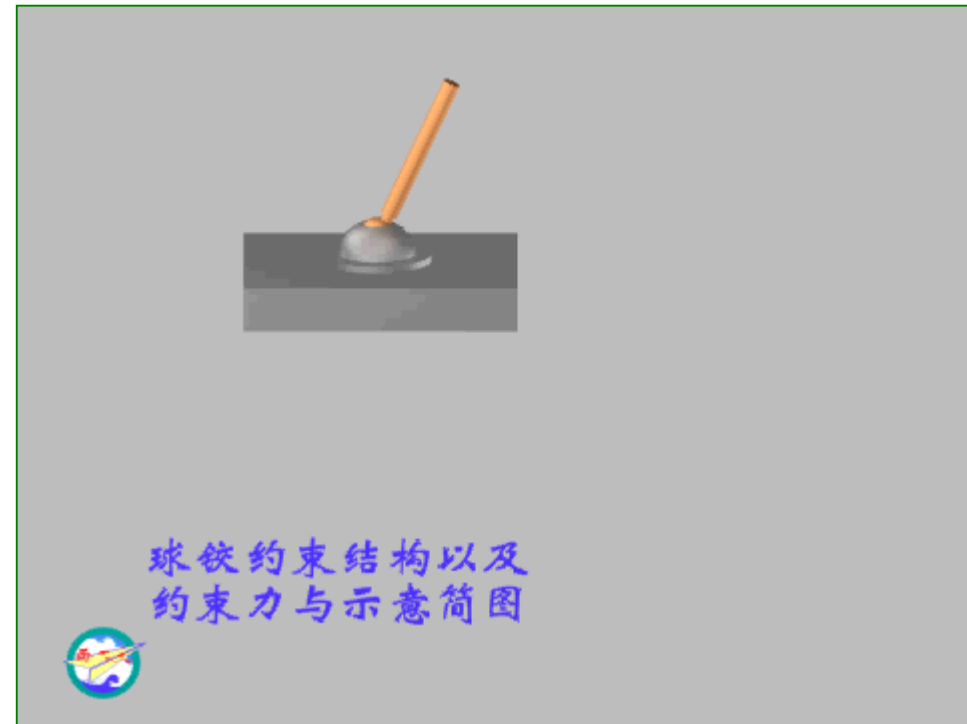
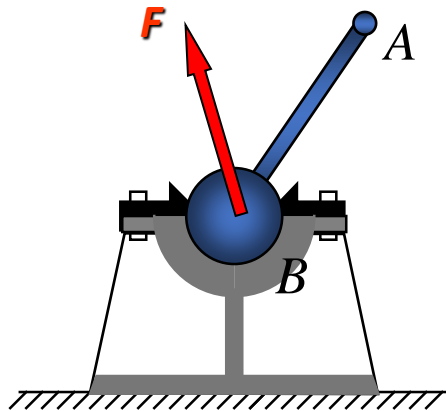
光滑圆柱铰链约束实例

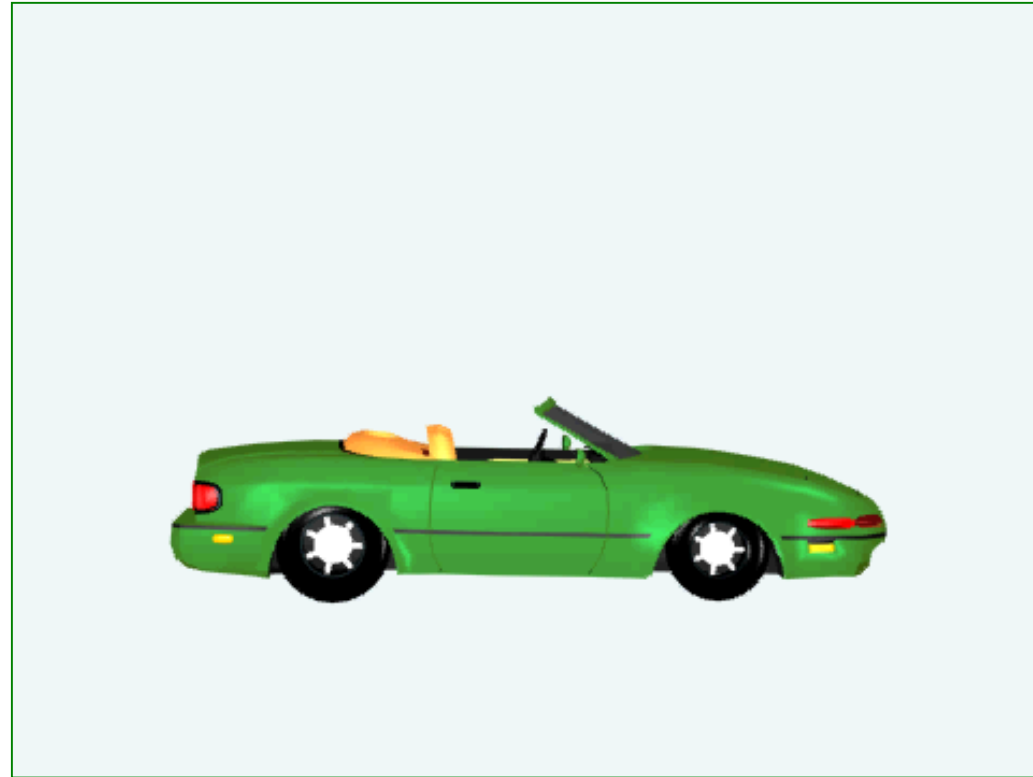


光滑圆柱铰链约束实例



● 光滑球铰链约束：

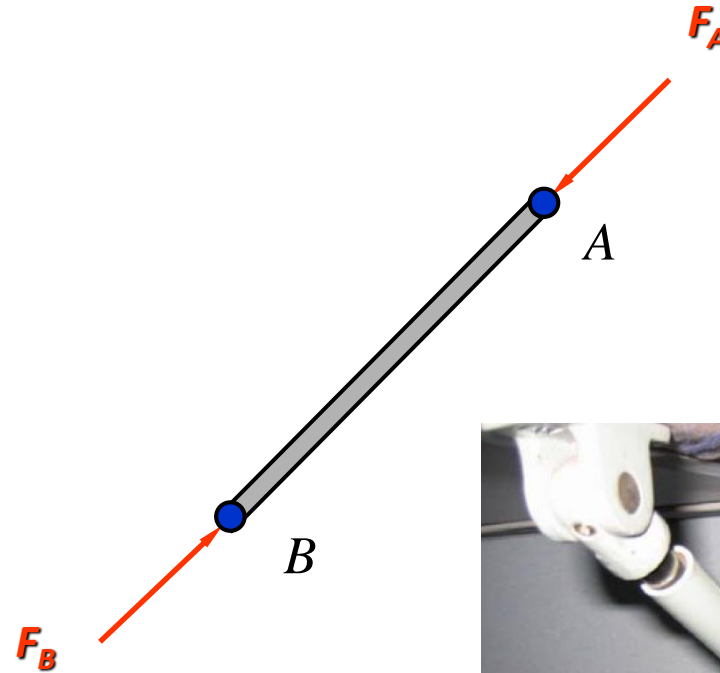
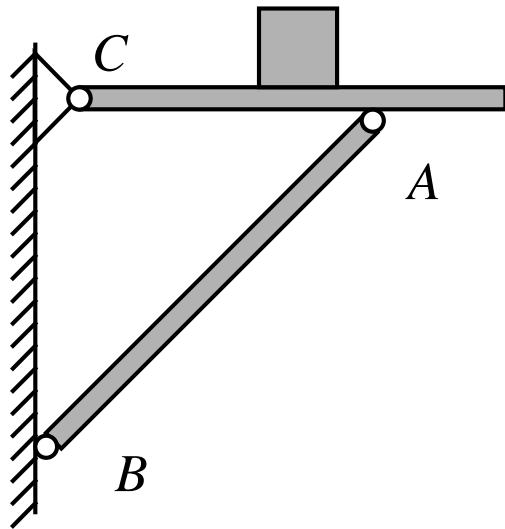




光滑球铰链约束实例

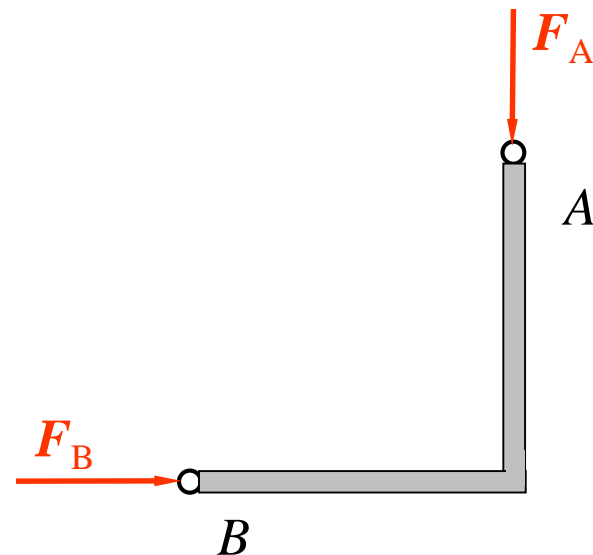
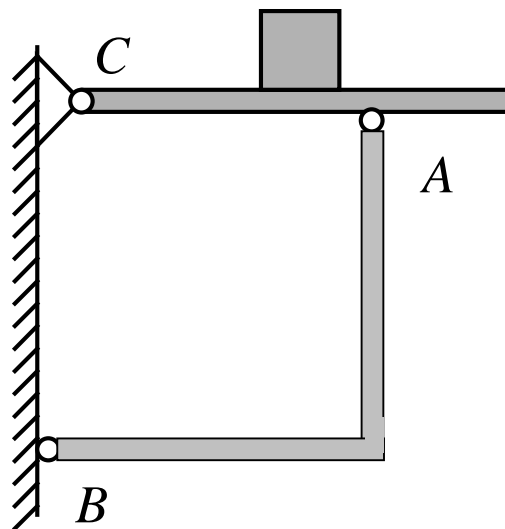


● 双铰链刚杆约束





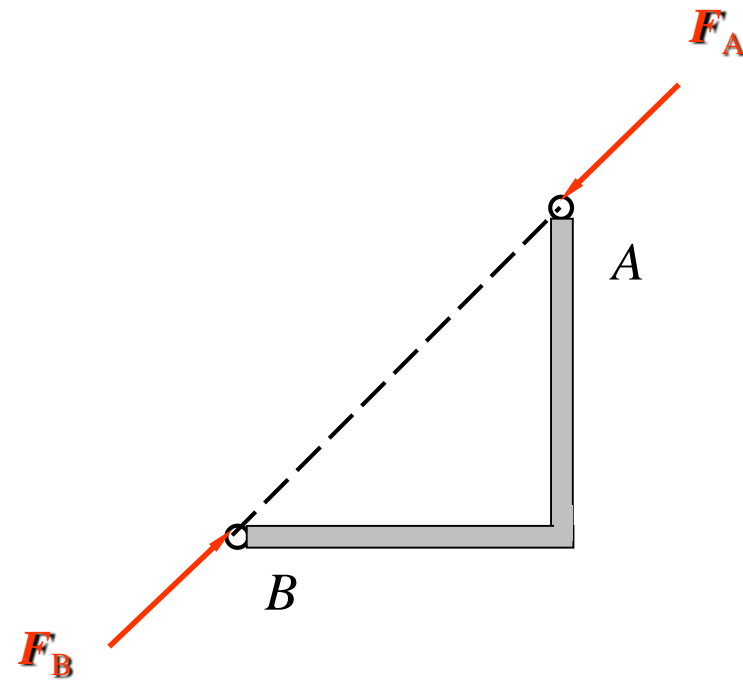
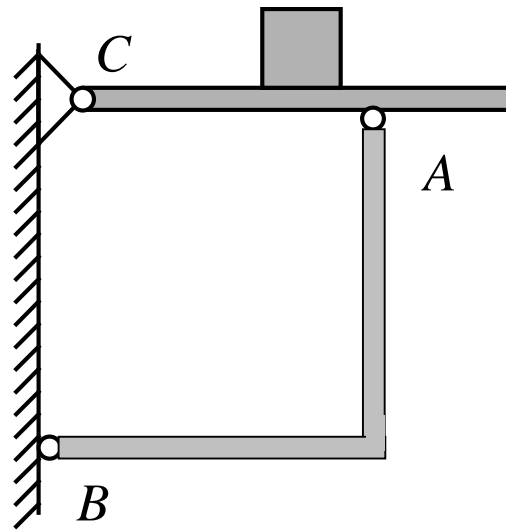
● 双铰链刚杆约束



受力图正确吗？

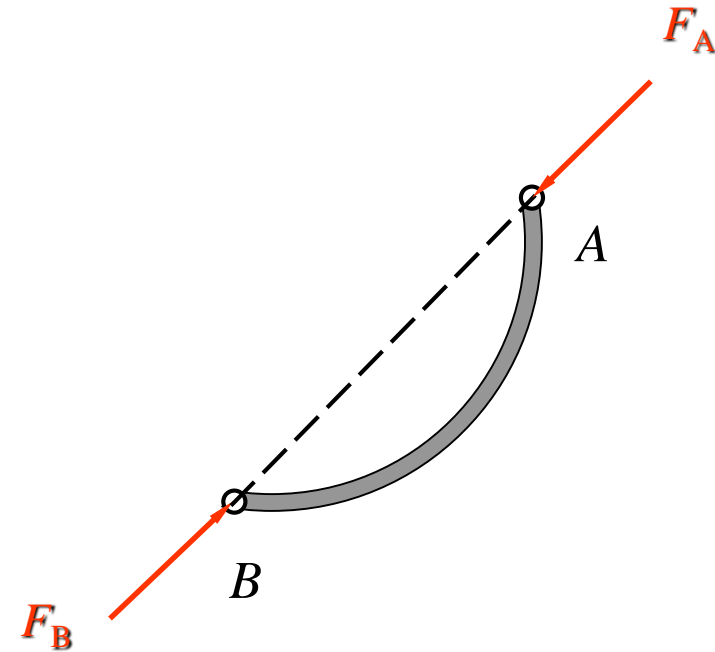
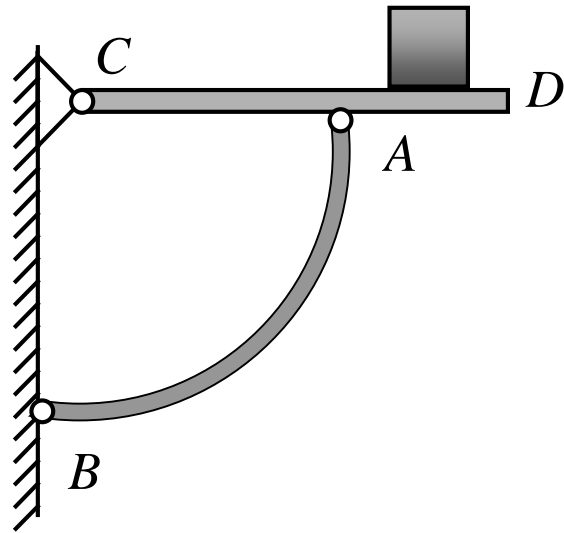


● 双铰链刚杆约束



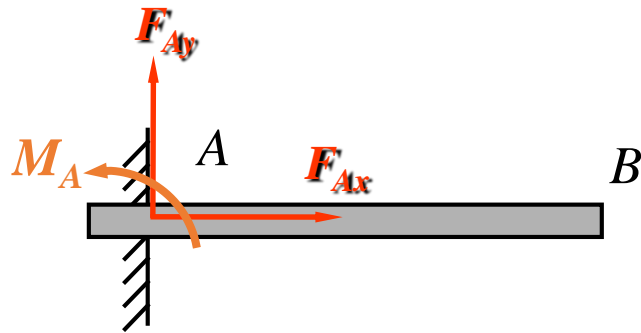


● 双铰链刚杆约束





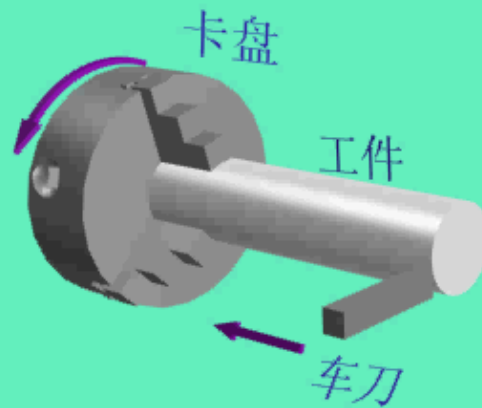
● 插入端约束







插入端约束实例





谢谢 !