

Guidebook for
SolidWorks
3D Solid Design with
Computer Training
Exercises

2011

SolidWorks

三维实体设计 习题与上机指导

主 编 刘庆立 王 芳
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序 言

PREFACE

本书是《SolidWorks 三维实体设计教程》(清华大学出版社,2011)的配套习题与上机指导,在内容上涵盖了实体零件建模、曲面建模、装配体建模、三维渲染等;在编排顺序上按照难易程度对习题进行了分类,共分为4个星级,并以此为基础将全书分为基础练习、进阶练习、强化练习、装配练习、创意练习以及模拟考题等;在素材选取上按照应用场合和训练目标分为组合体三视图、零件图、装配图以及实体创意图等。

为了便于读者识图和绘图,我们将每个例子的实体建模过程分解后,以实体形式分步骤展现三维实体的建模过程,并简要说明操作方法和技巧,以帮助读者掌握实体建模的要领。为了帮助读者充分利用本书的习题资源,提高 SolidWorks 三维实体建模的效率和水平,我们给出以下的练习方法,供读者参考。

练习步骤一:读三视图或零件工程图,分析三维实体的形状特征及建模方法,并与建模过程立体分解图比对。

练习步骤二:采用尽可能高效而简便的三维建模方法对实体进行建模,完成后在右上角的“时间标记框”中标记建模时间,以便评估自己的设计水平。时间标记的含义如下:

🕒 15 分钟以内 🕒 30 分钟以内 🕒 45 分钟以内 🕒 1 个小时及以上

练习步骤三:参照给定的工程图,将建模完成的三维实体投影成二维工程图,设置比例,标注尺寸,并采用剖视图、局部视图等多种表达方法,以便读者练习二维工程图的绘图和投影技巧。

练习步骤四:参照习题集中的创意素材,或身边的椅子、桌子、手机、计算机、建筑物、动物乃至花草树木等,进行三维实体建模、曲面建模或装配体建模,充分发挥自己的想象力和创造力,并对建模完成的实体进行材质和环境渲染,练习创作逼真的立体效果图。

练习步骤五:完成本书全部例题后,做模拟考题,检验自己的学习效果。

相信读者按照以上5个步骤,一定能够在短期内迅速提高 SolidWorks 软件的操作水平和三维实体设计水平。实际上,读者也会发现本书除了可以作为 SolidWorks 三维实体设计的习题集,也可以作为 Pro/E、UG 等其他三维设计软件的习题参考。由于本书采用了工程图和立体分解图相对照的编排方式,可以帮助读者提高空间思维能力以及二维工程图的读图能力,因此,本书也可以作为大学一年级学生学习机械制图课程的读图、画图训练用书。

本书在编写过程中,得到了陕西科技大学工程图学教研室周明贵教授、张元莹副教授、郭红利副教授的大力支持和帮助,在此向以上老师致以由衷的谢意。

限于作者水平,书中错误在所难免,请读者批评指正。

编者

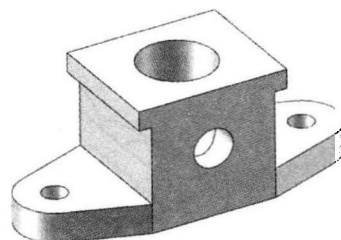
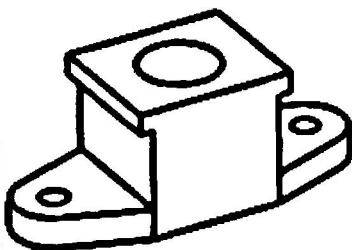
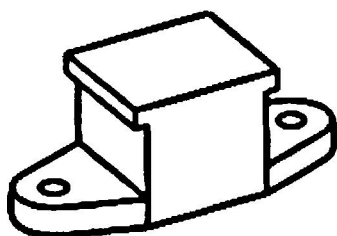
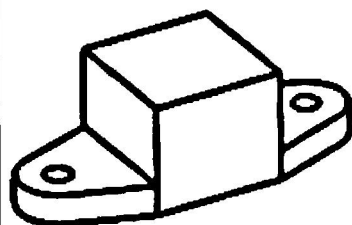
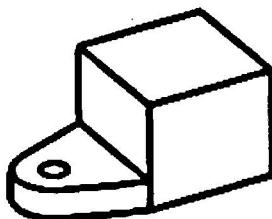
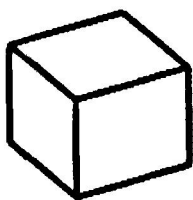
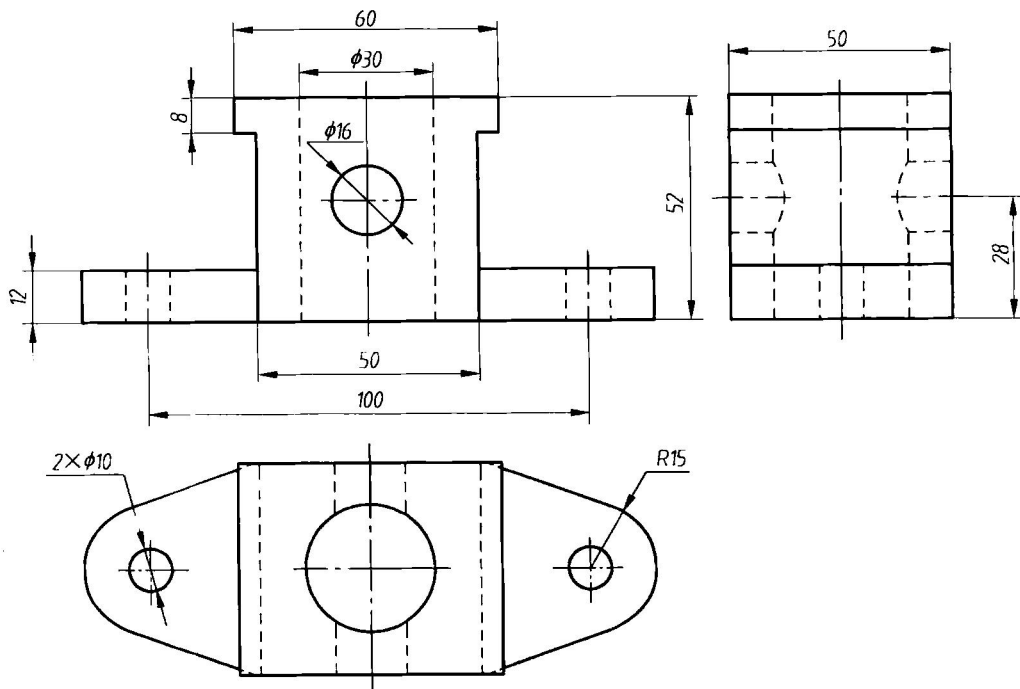
2011年10月

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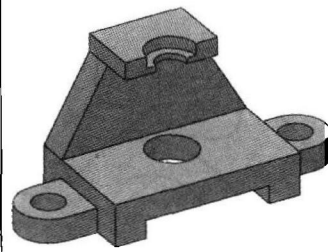
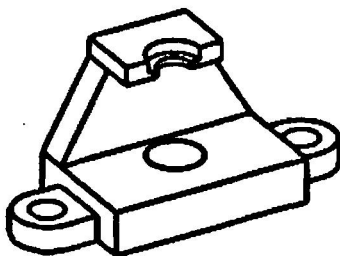
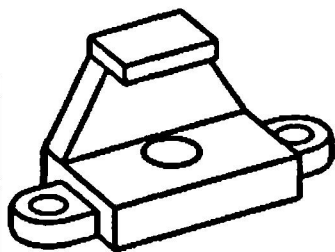
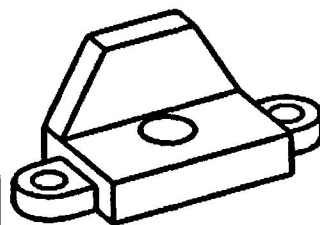
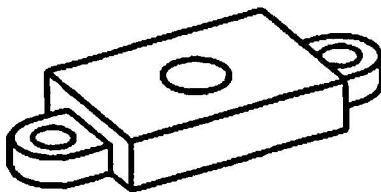
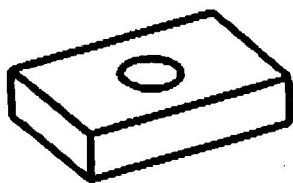
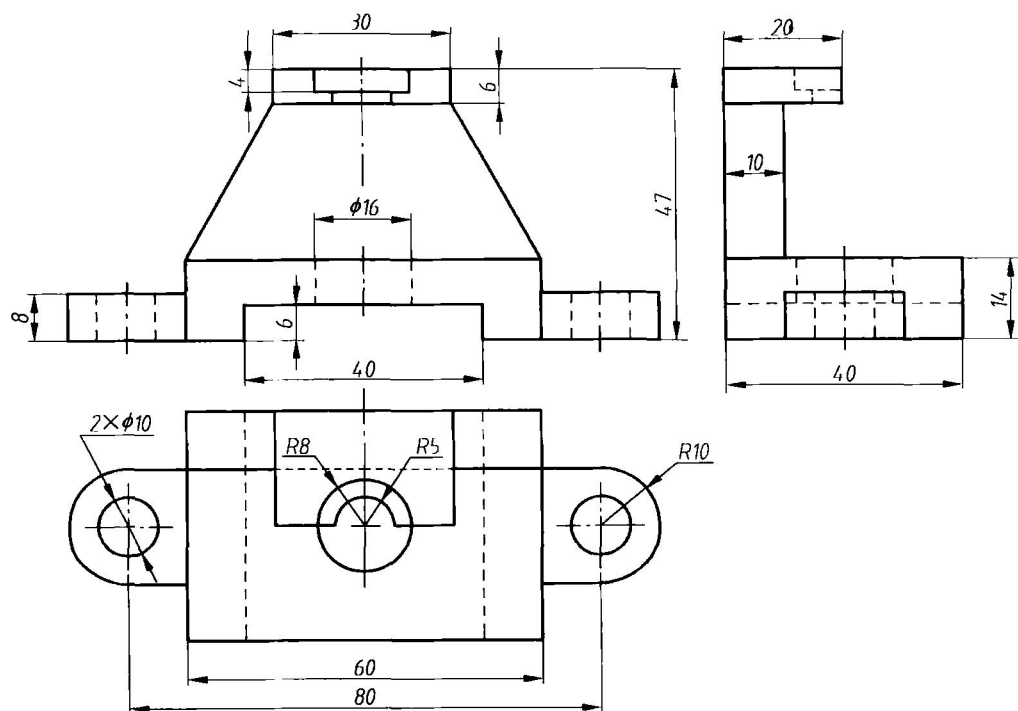
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基础练习 1 ★



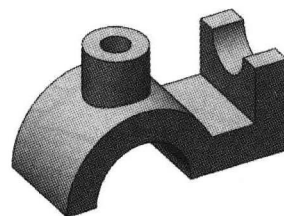
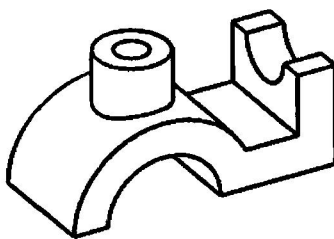
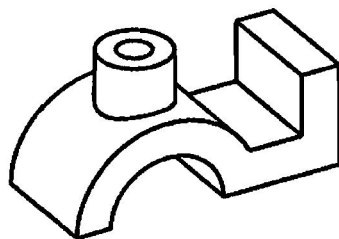
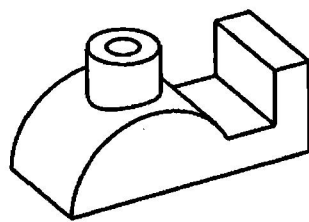
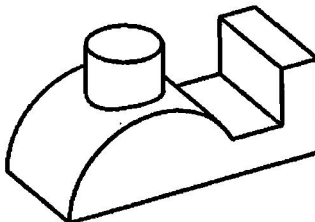
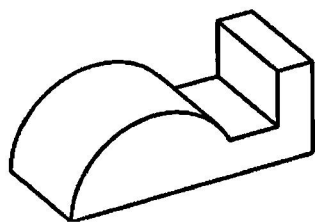
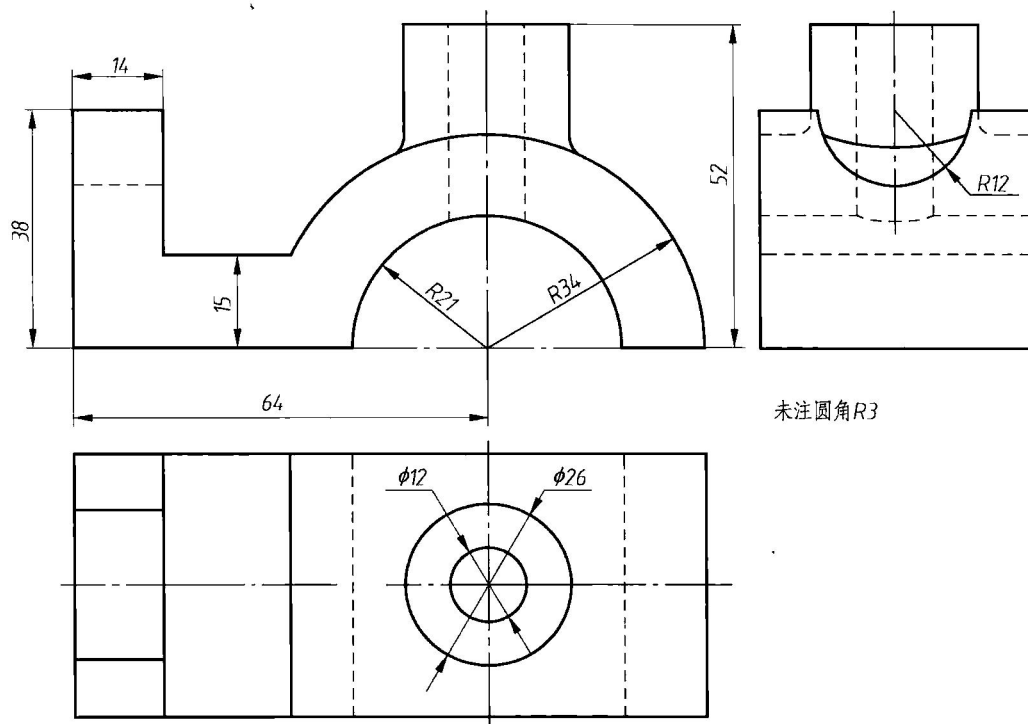
作图提示：拉伸凸台→拉伸凸台→特征镜向→拉伸凸台→拉伸切除→拉伸切除

基础练习 3 ★



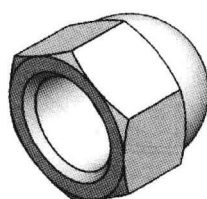
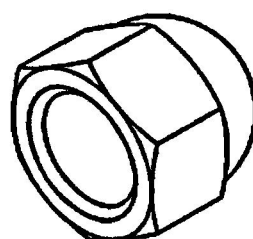
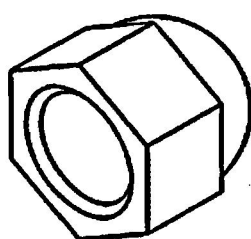
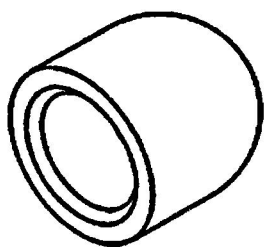
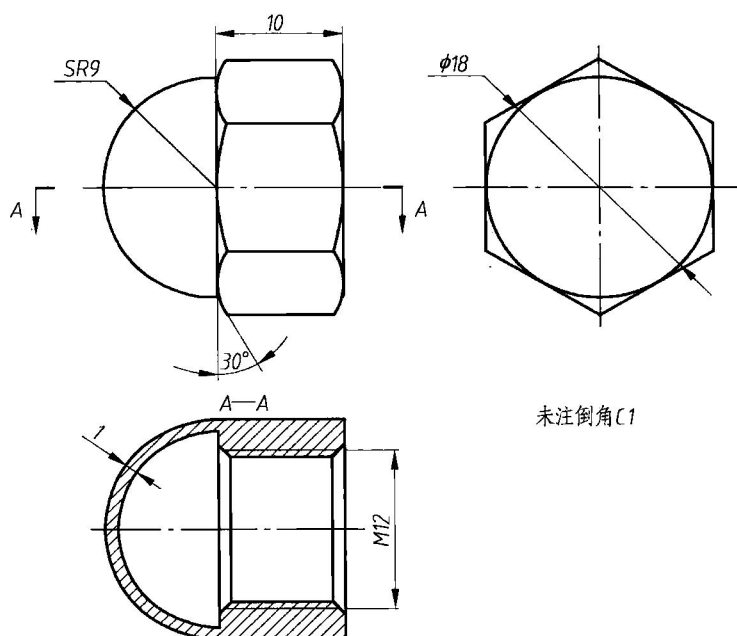
作图提示：拉伸凸台→拉伸凸台→拉伸凸台(或放样)→拉伸凸台→拉伸切除→拉伸切除

基础练习 4 ★



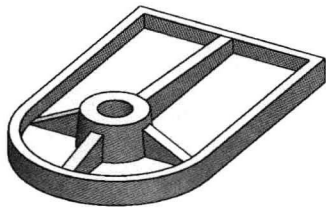
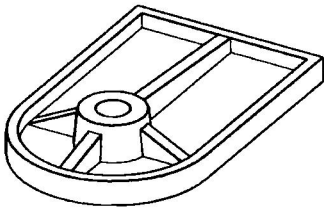
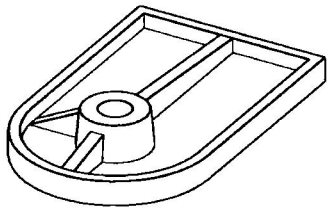
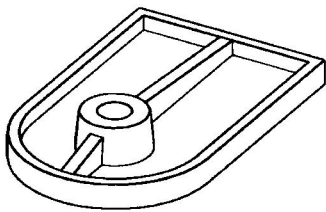
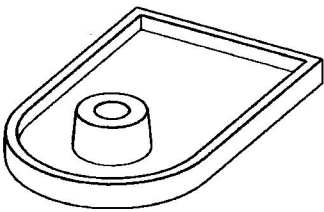
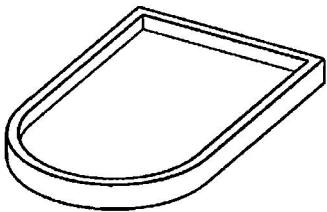
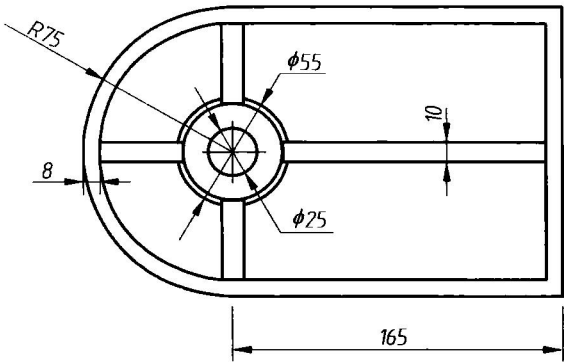
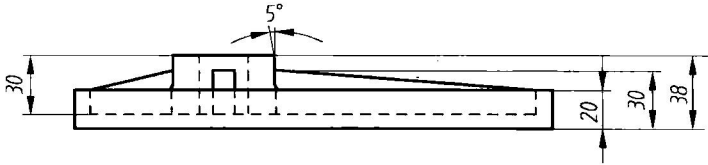
作图提示：拉伸凸台→拉伸凸台→拉伸切除→拉伸切除→拉伸切除

基础练习 5 ★



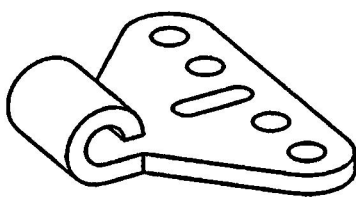
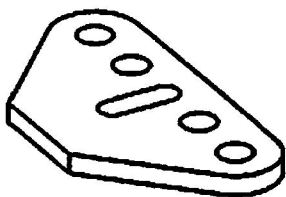
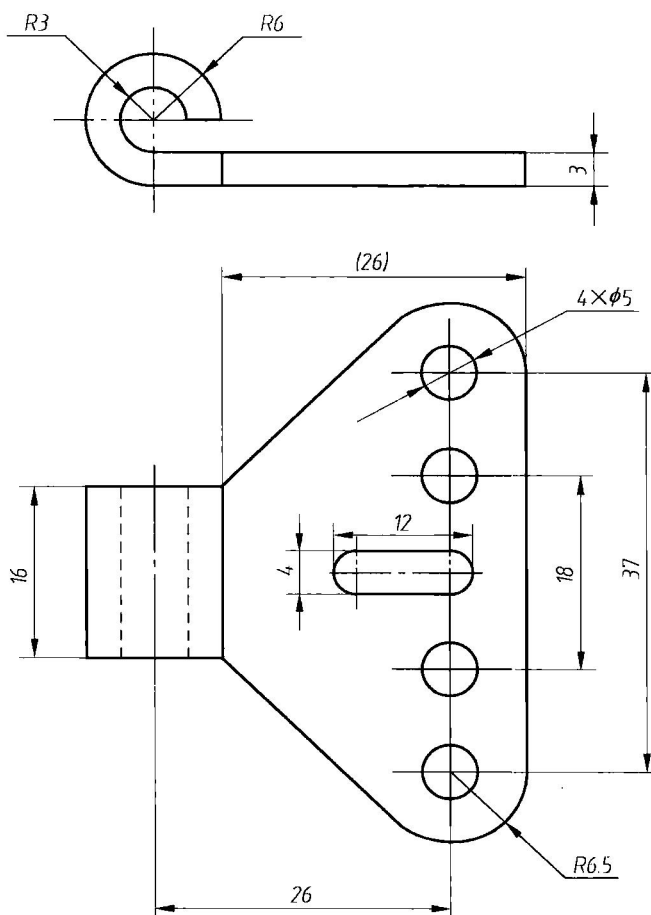
作图提示：旋转→拉伸凸台→旋转切除

基础练习 6 ★



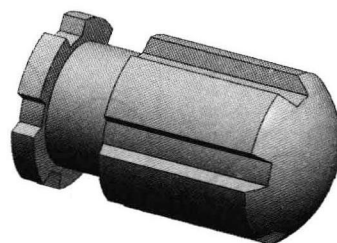
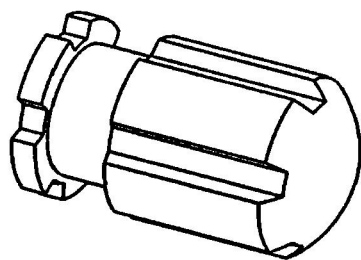
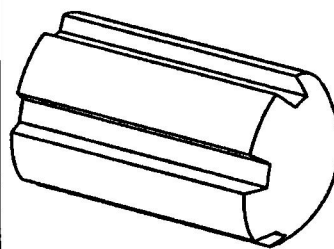
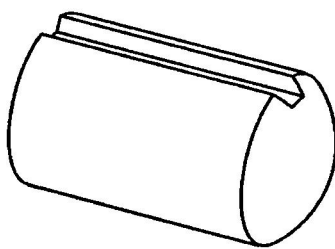
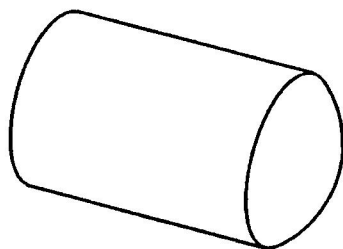
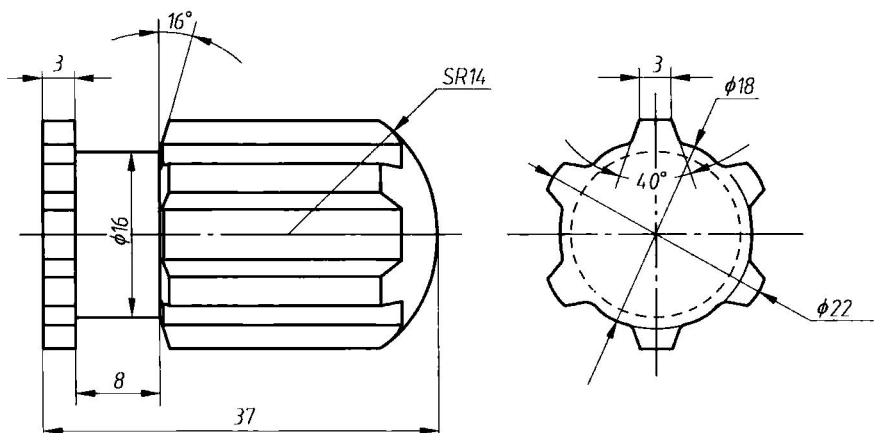
作图提示：拉伸凸台→抽壳→拉伸凸台→筋板→筋板→镜向

基础练习 7 ★



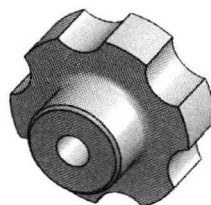
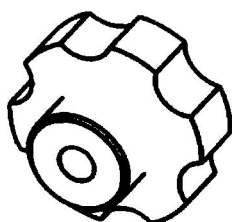
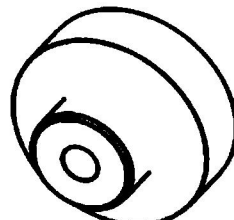
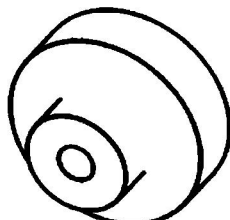
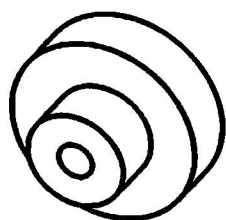
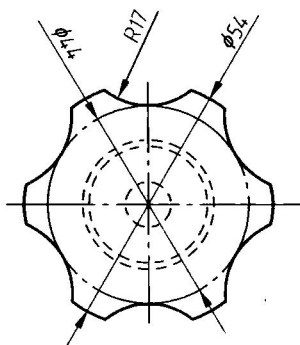
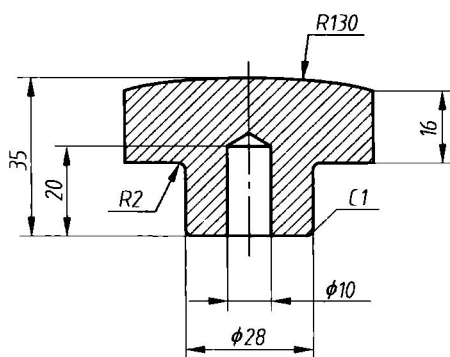
作图提示：拉伸凸台→拉伸凸台→拉伸切除→拉伸切除→拉伸切除

基础练习 8 ★



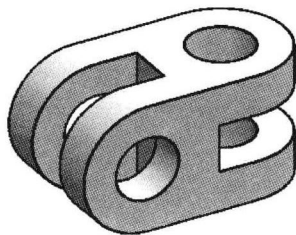
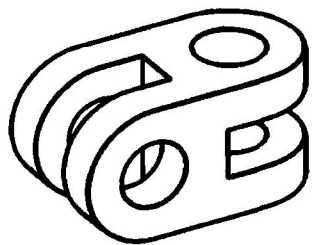
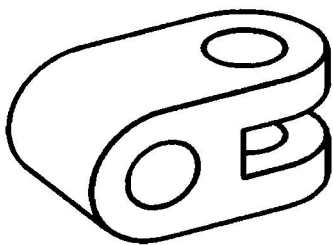
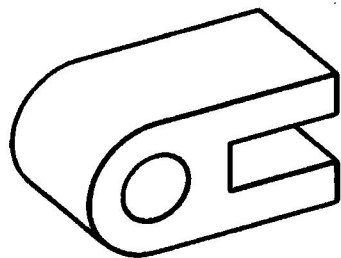
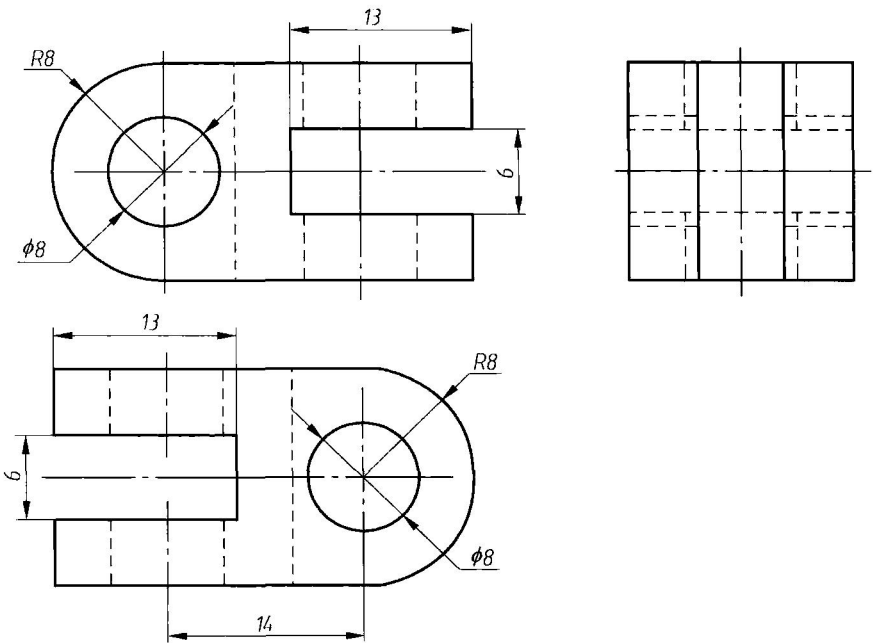
作图提示：旋转凸台→拉伸切除→圆周阵列→旋转切除

基础练习 9 ★



作图提示：旋转→圆角→倒角→拉伸切除

基础练习 10 ★



作图提示：拉伸凸台→拉伸切除→拉伸切除

