



石家莊鐵道大學  
SHIJIAZHUANG TIEDAO UNIVERSITY

网络精品课程

# 建筑工程制图

## 平面体

### 平面体的投影

主讲：唐广

# 目录

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- 棱柱的投影及投影特征
- 棱锥的投影及投影特征



# 立体的分类:

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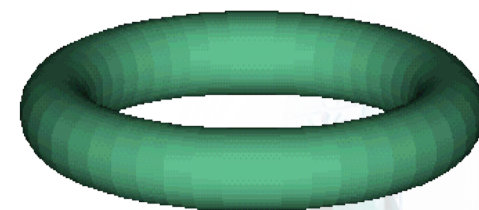
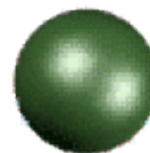
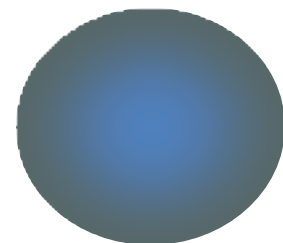
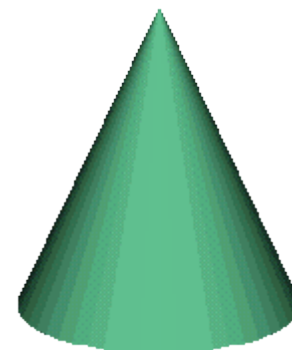
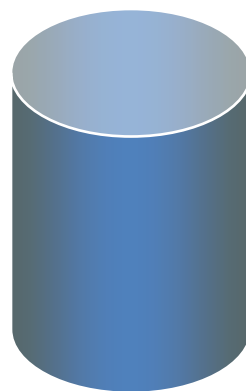
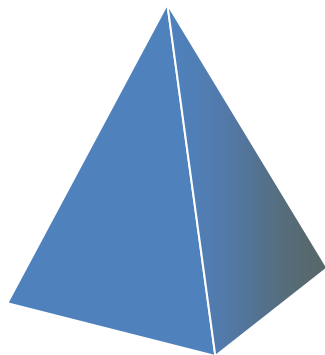
- 平面体：立体表面是由若干面所组成
- 曲面体：表面为曲面组成，或平面与曲面组成
  
- 基本体：棱柱、棱锥、圆柱、圆锥、球
- 组合体：由基本题组合而成



# 常见的基本几何体

平面基本体

曲面基本体



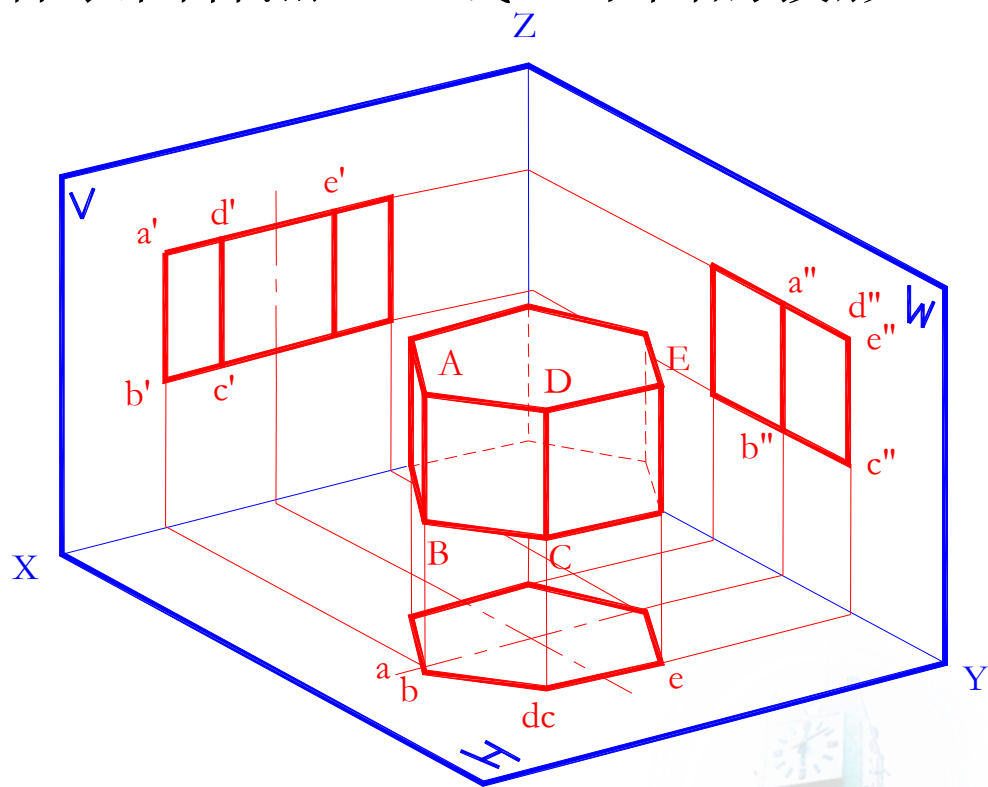
# 平面体的投影

平面立体的表面是由点、直线、平面等几何元素构成，因此平面体的投影就是绘制平面体表面各点、直线、平面的投影，并判断可见性。

## 一、棱柱

### 1、棱柱的组成

由两个底面和几个侧棱面组成。棱面与棱面的交线叫棱线，棱线相互平行。

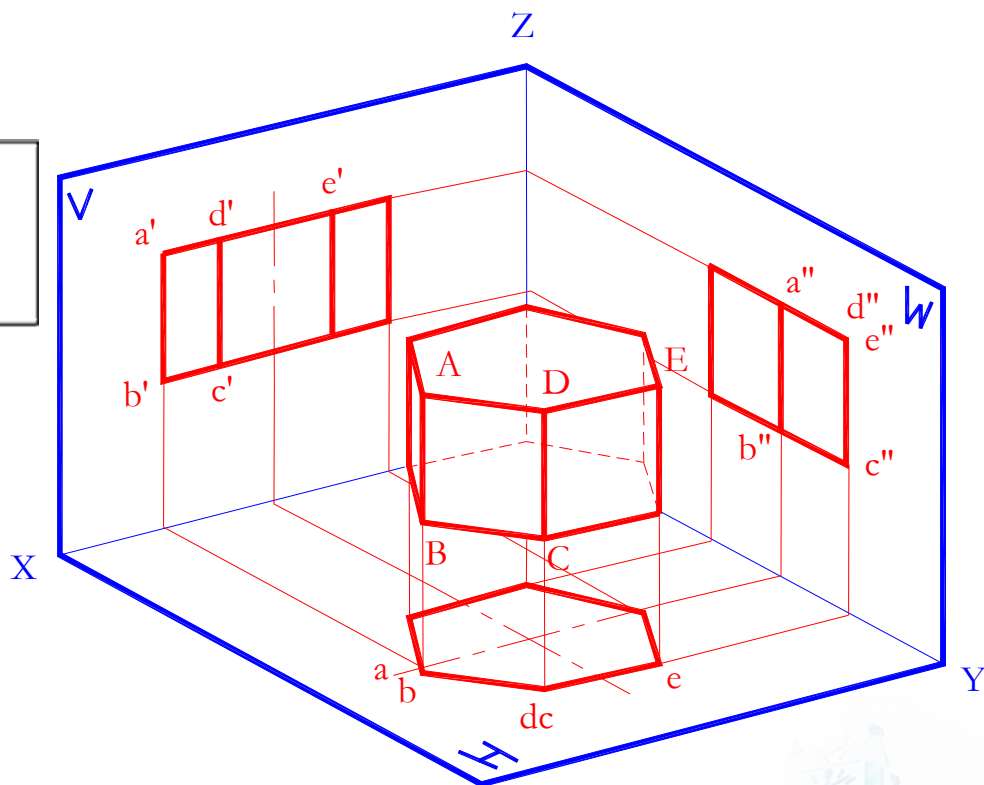
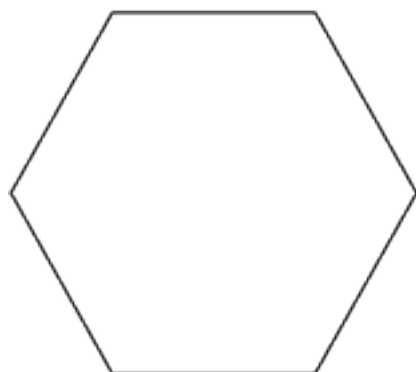
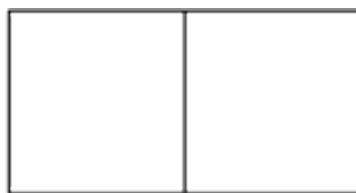


# 棱柱的三面投影图

V-H: 长对正

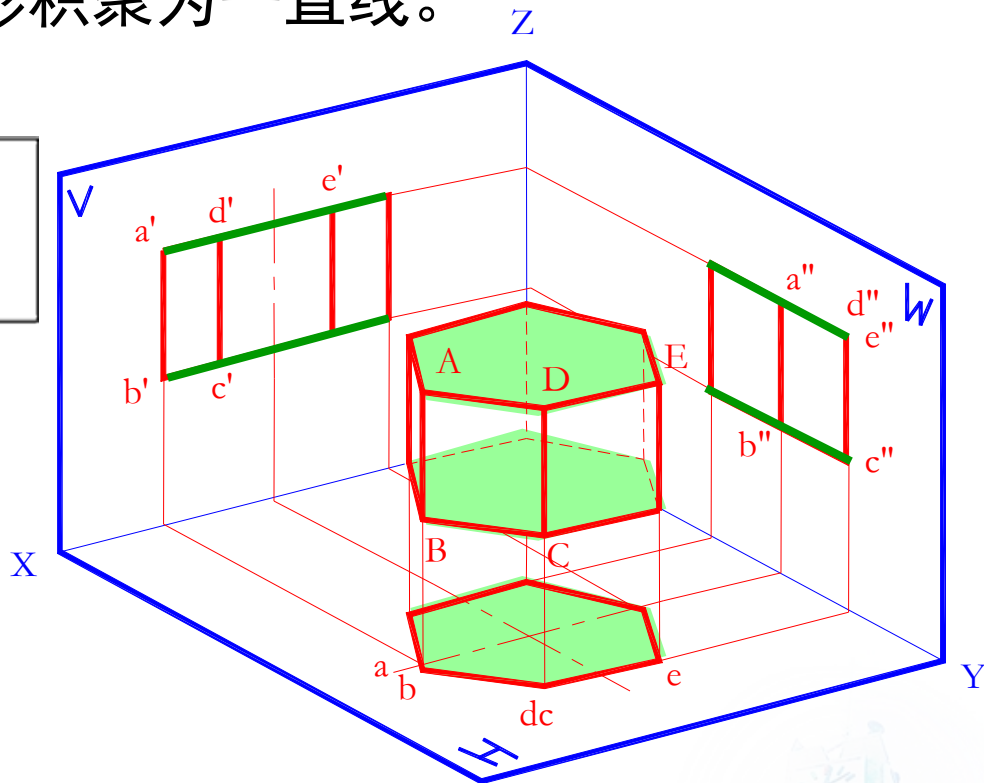
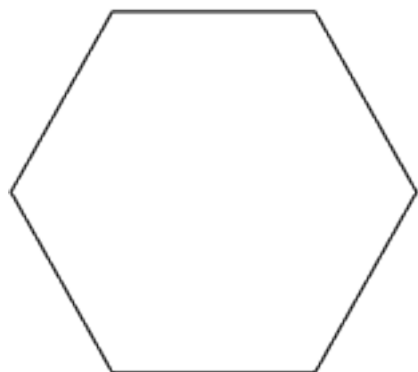
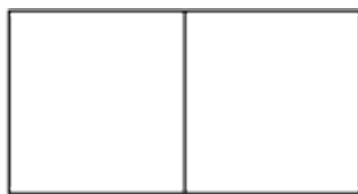
V-W: 高平齐

H-W: 宽相等



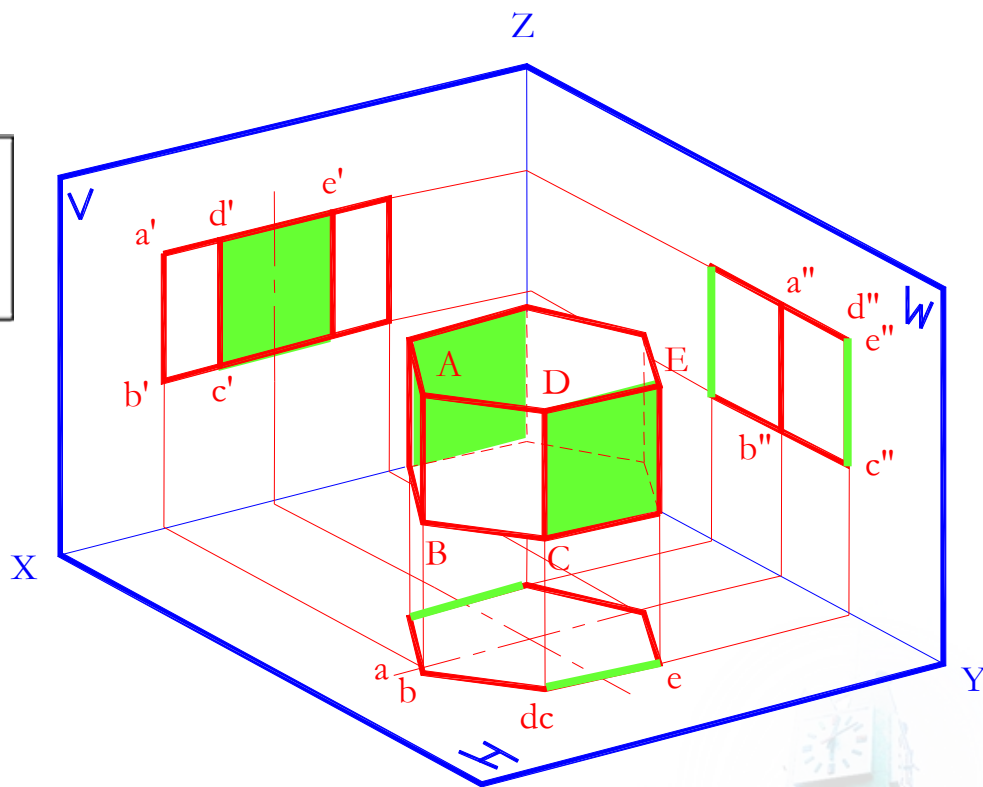
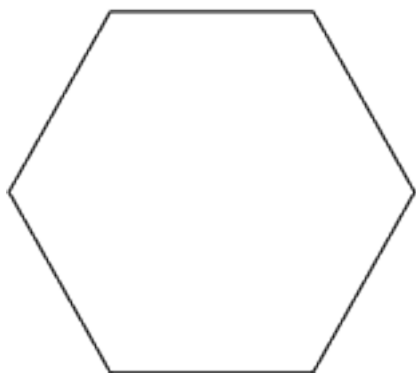
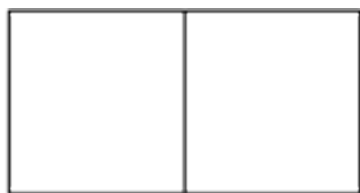
## 2、棱柱的投影特性

正六棱柱，其顶面、底面均为水平面，它们的水平投影反映实形，正面及侧面投影积聚为一直线。



## 2、棱柱的投影特性

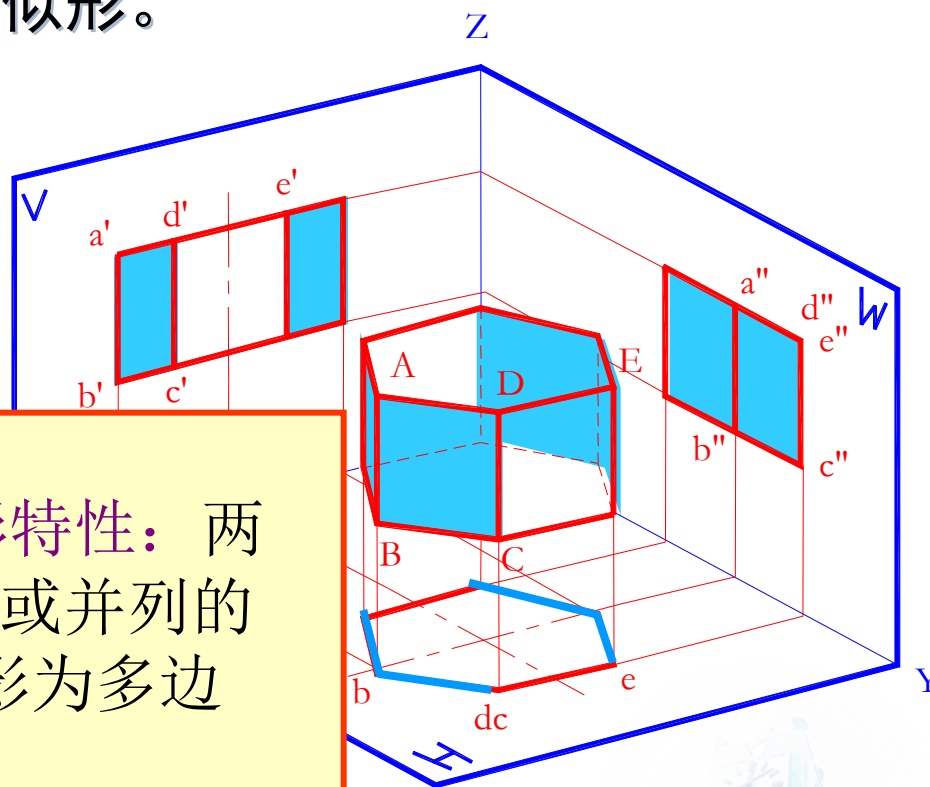
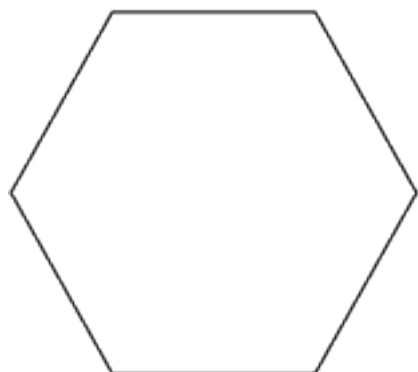
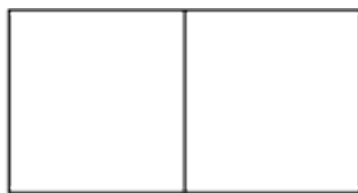
棱柱有六个侧棱面，前后棱面为正平面，它们的正面投影反映实形，水平投影及侧面投影积聚为一直线。





## 2、棱柱的投影特性

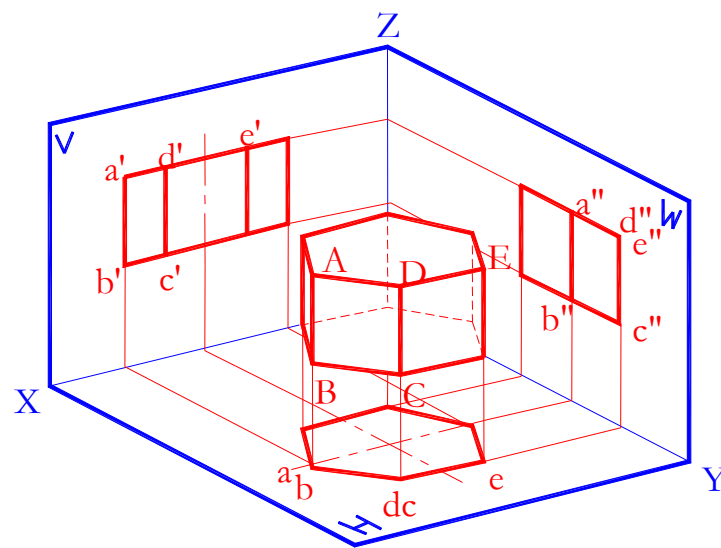
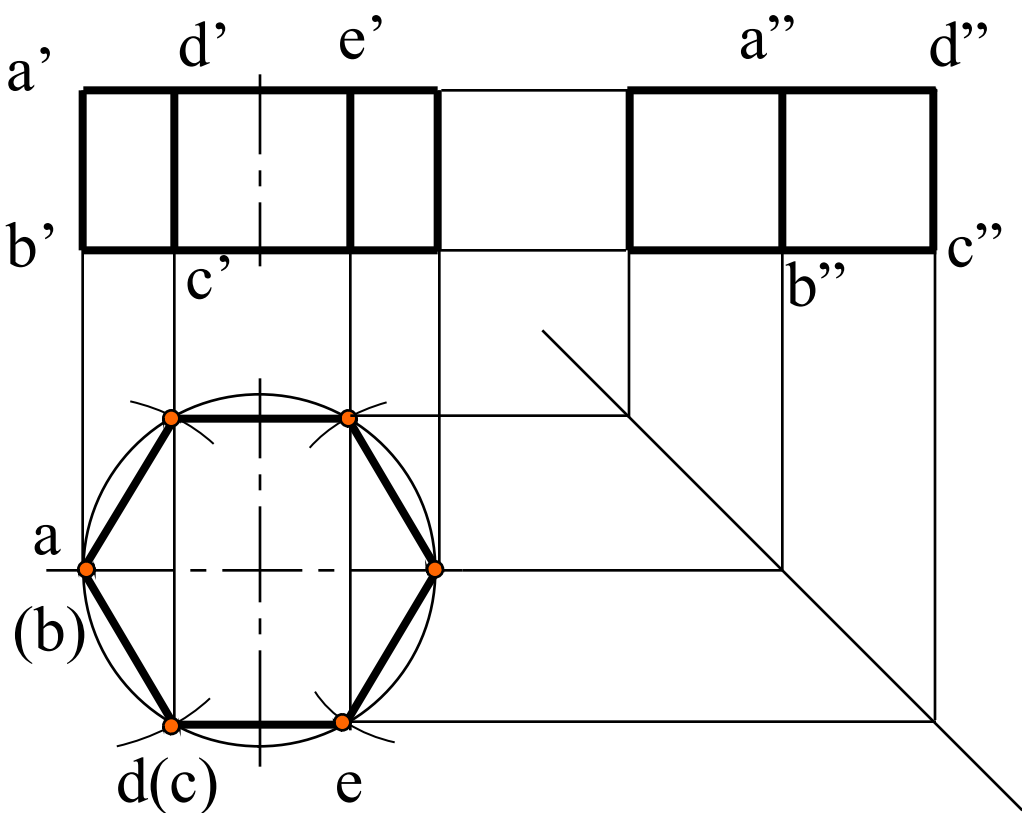
棱柱的其它四个侧棱面均为铅垂面，其水平投影均积聚为一直线。正面投影和侧面投影均为类似形。



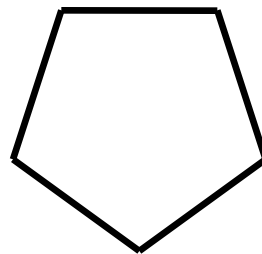
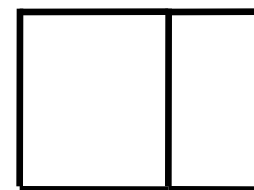
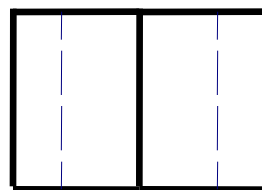
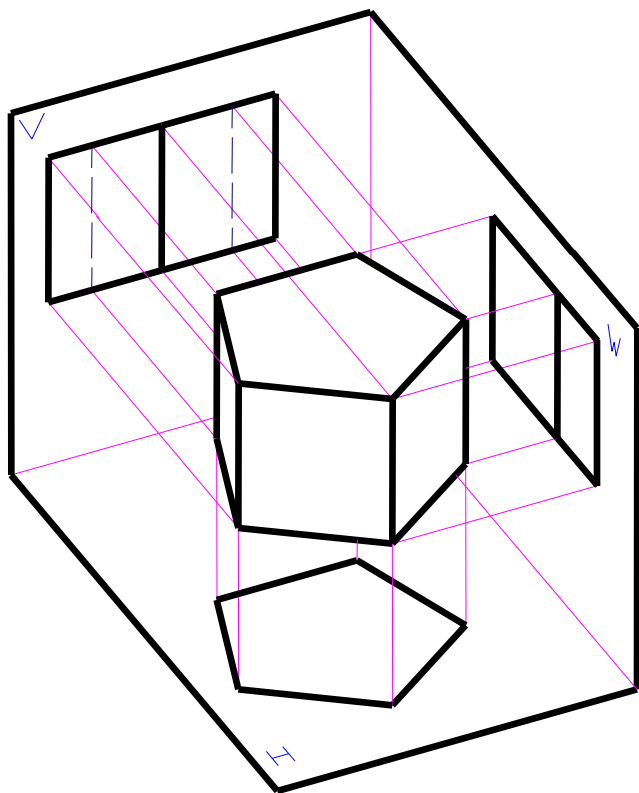
棱柱的投影特性：两个投影为矩形或并列的矩形，一个投影为多边形。

### 3、画六棱柱的三视图

画投影图时，先画出正六棱柱底面的投影-正六边形，再根据投影规律画出另外两个投影。



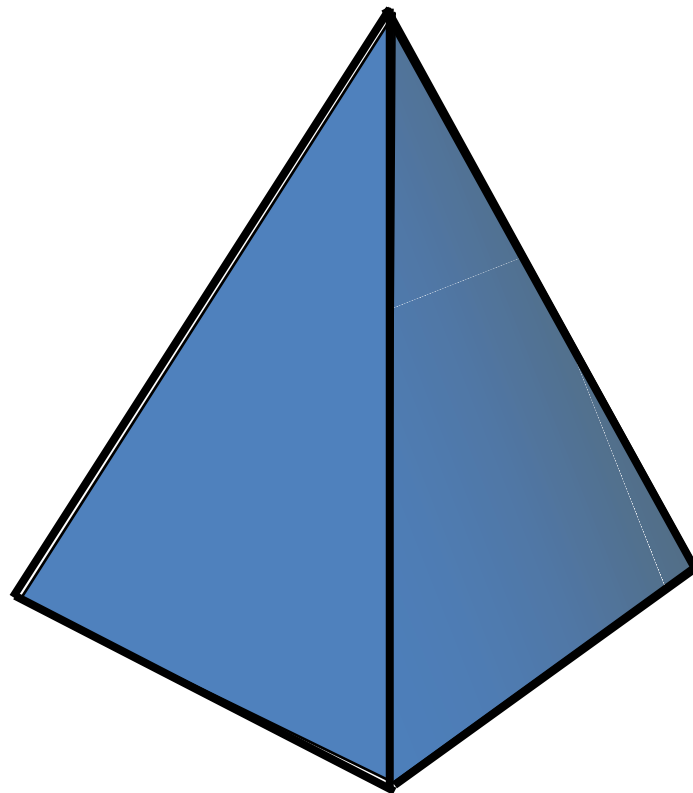
# 4、五棱柱的三面投影图



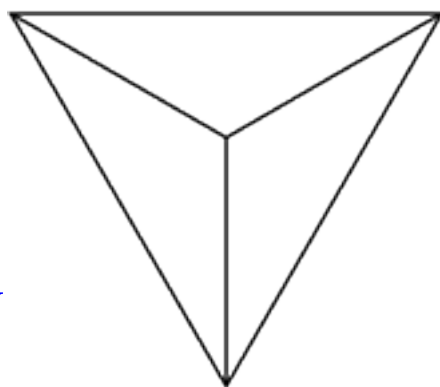
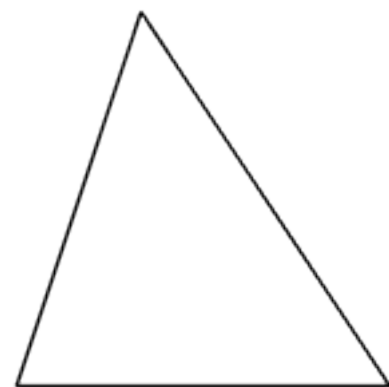
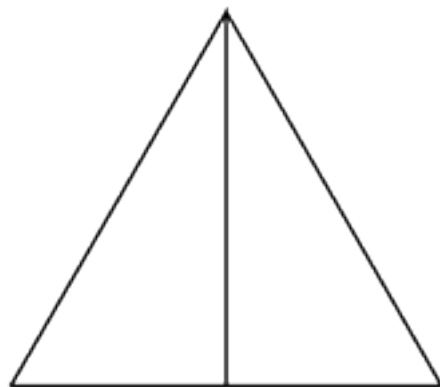
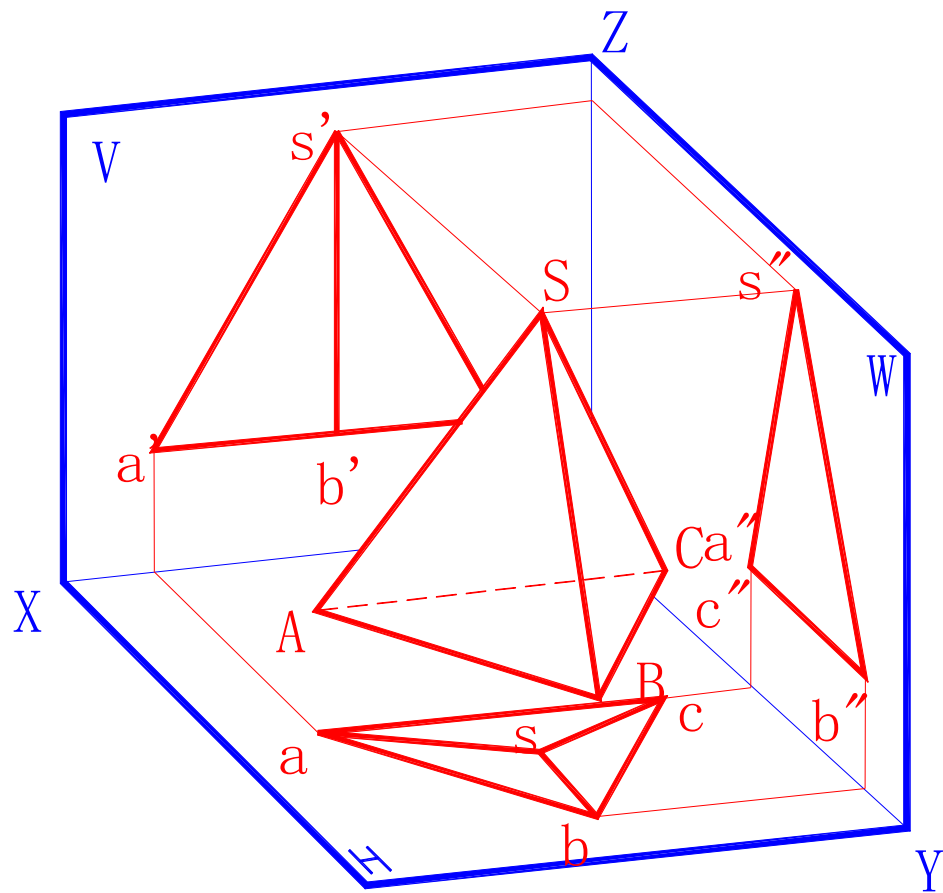
## 二、棱锥

### 1、棱锥的组成

一个底面和  
几个侧棱面  
棱线交于有限远的  
一点——锥顶

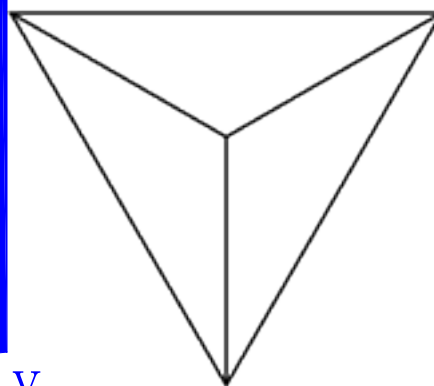
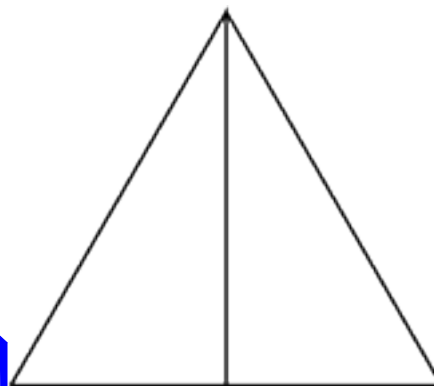
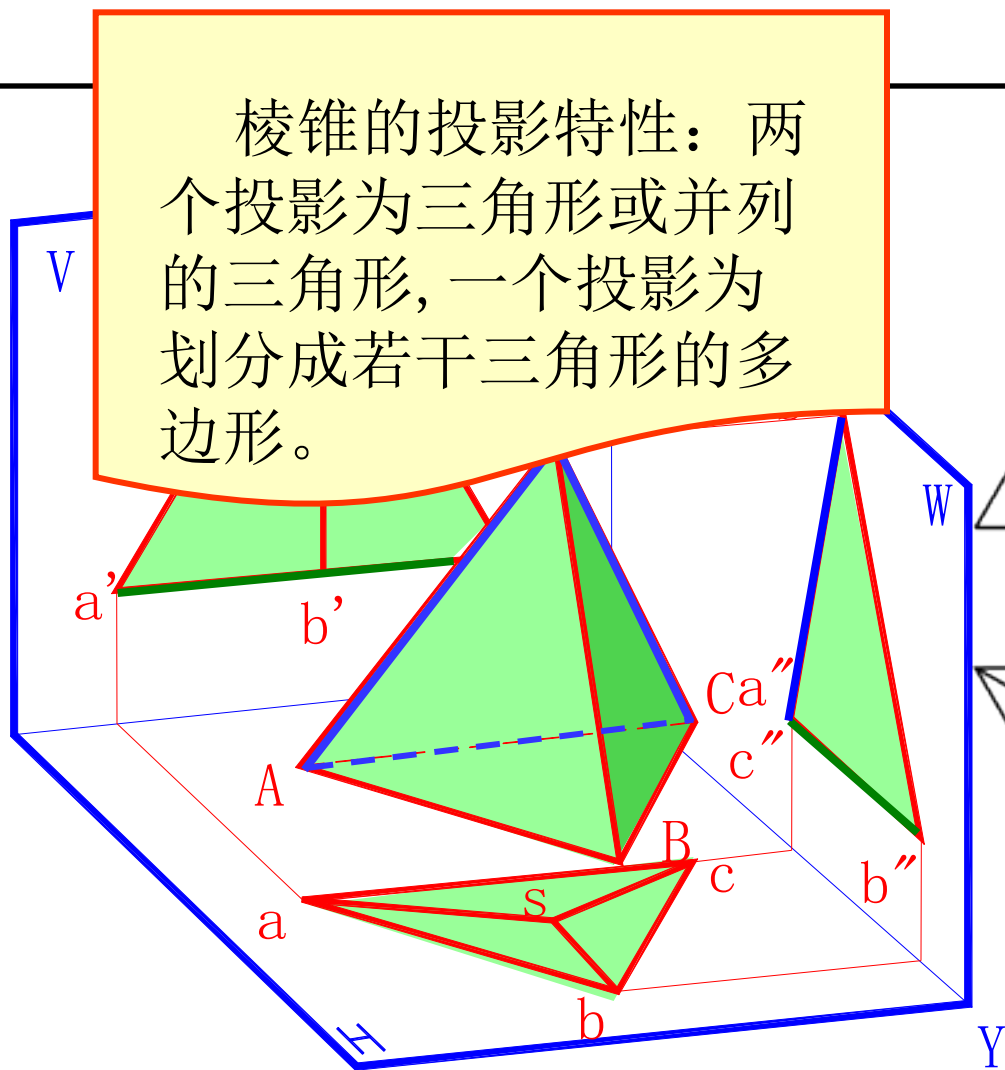


# 棱锥的三面投影图



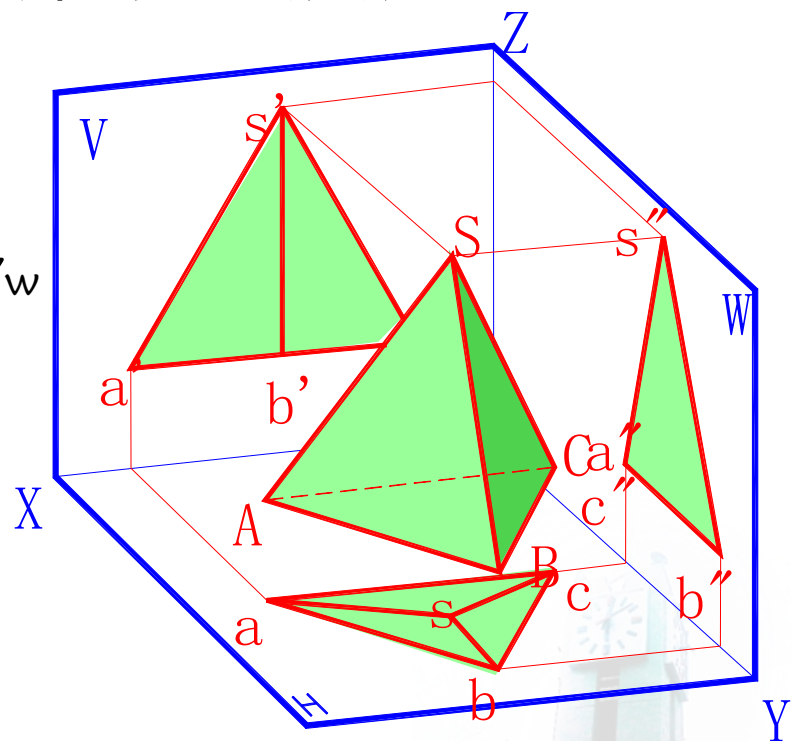
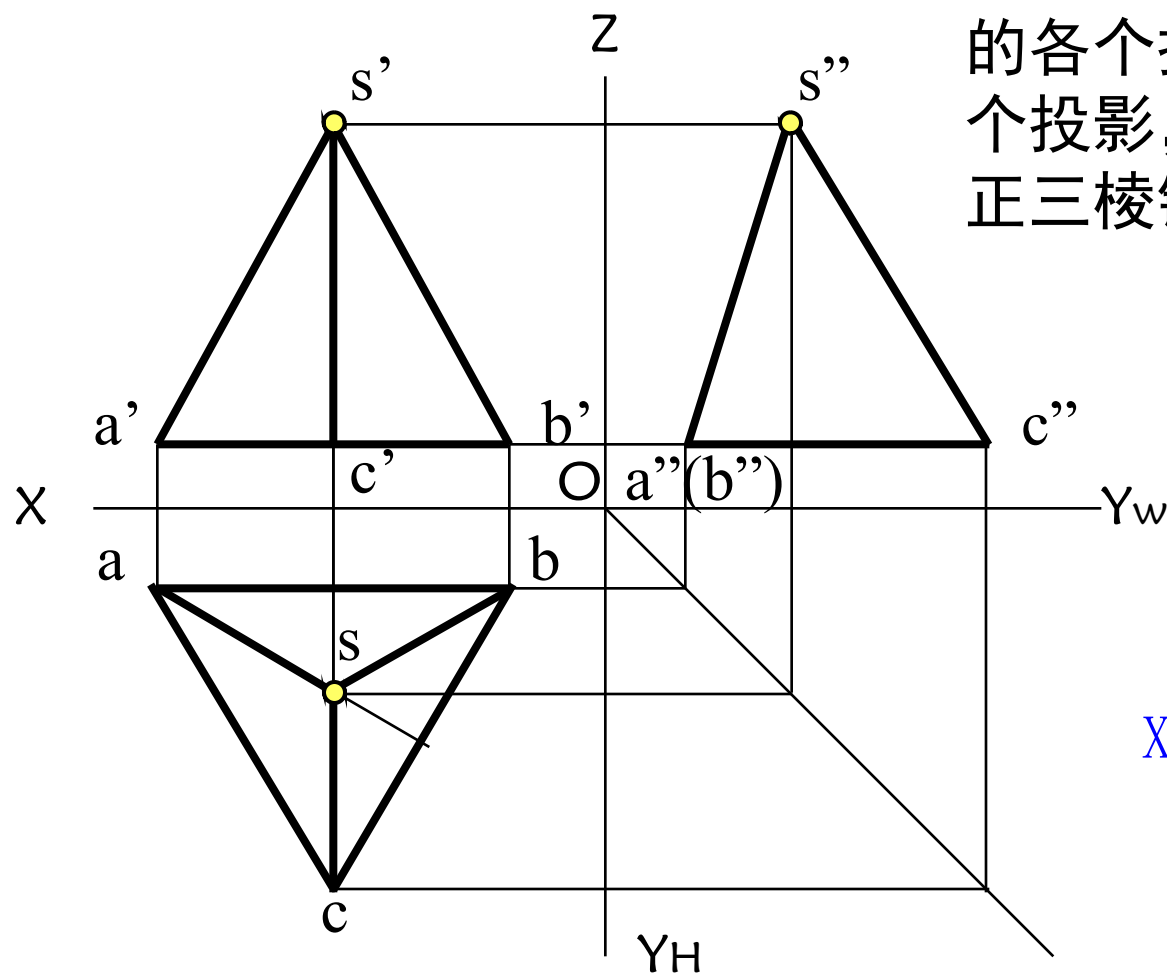
## 2、棱锥的投影特性

棱锥的投影特性：两个投影为三角形或并列的三角形，一个投影为划分成若干三角形的多边形。



# 3、画三棱锥的三视图

作图时，先画出底面 $\triangle ABC$ 的各个投影，再作出锥顶 $S$ 的各个投影，然后连接各棱线，即得正三棱锥的三面投影。



正三棱锥的三面投影图

# 小结

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- 掌握棱柱和棱锥的投影特征
- 掌握棱柱和棱锥投影图的画法

