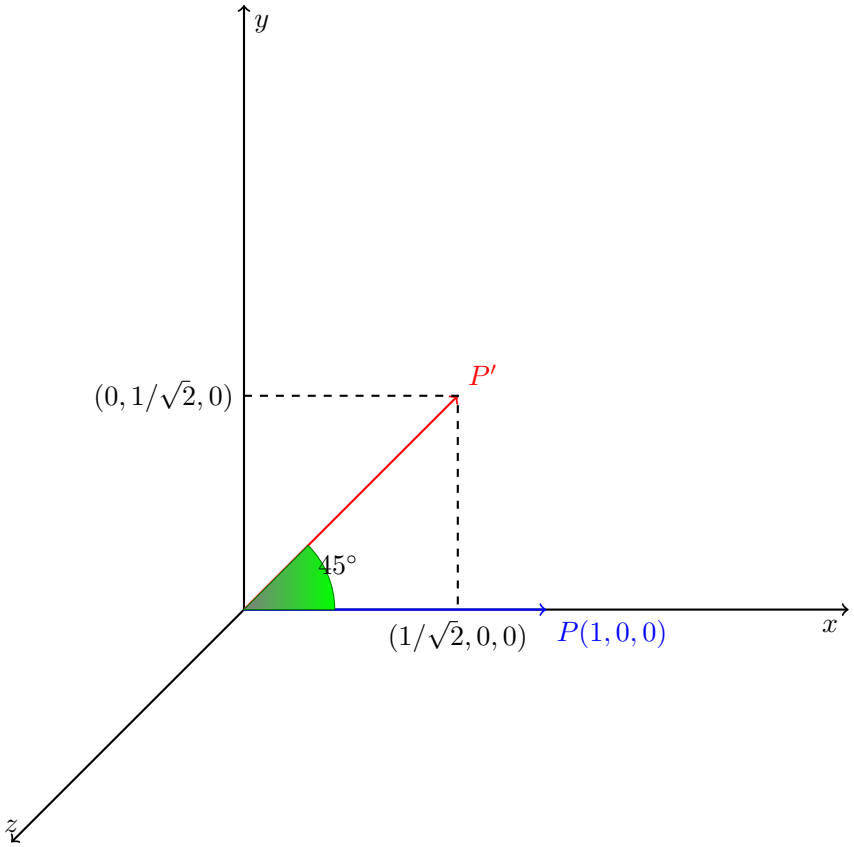
目录

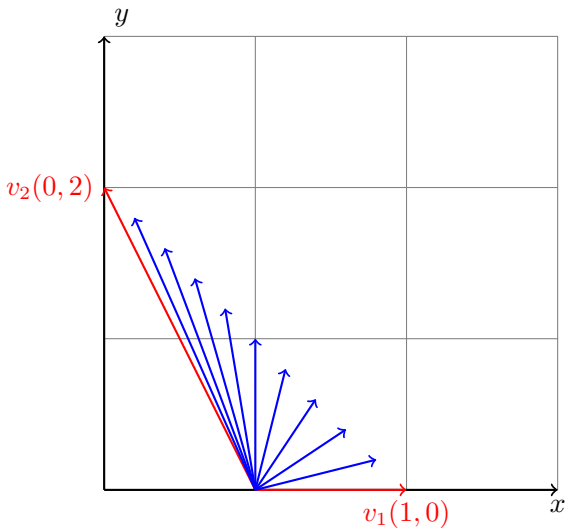
第一章　tikz/pgf 作图

1.1　基本图元

```
\begin{tikzpicture}[scale=4]

\coordinate (O) at (0,0,0);
\coordinate (X) at (1,0,0);
\coordinate (P) at (0.7071,0.7071,0);
 \draw[domain=-2:2,samples=100,smooth];
 {\draw[color=black,thick,->] (0,0,0) -- (2,0,0) node[anchor=north east]{$x$};}%
   {\draw[color=black,thick,->] (0,0,0) -- (0,2,0) node[anchor=north west]{$y$};}%
   {\draw[color=black,thick,->] (0,0,0) -- (0,0,2) node[anchor=south]{$z$};}%
   \draw[color=blue,thick,->] (0,0,0) -- (1,0,0) node[anchor = north west]{$P(1,0,0)$};
    \draw[color=red,thick,->] (0,0,0) -- (0.7071,0.7071,0) node[anchor = south west]{$P'$};
\draw [thick, dashed] (0,0.7071,0) node[left] {$(0,1/\sqrt{2},0)$} -- (0.7071,0.7071,0)
   -- (0.7071,0,0) node[anchor=north]{$(1/\sqrt{2},0,0)$};
 pic ["$\theta$",draw,->] {angle = X--O--P};
\end{tikzpicture}

```

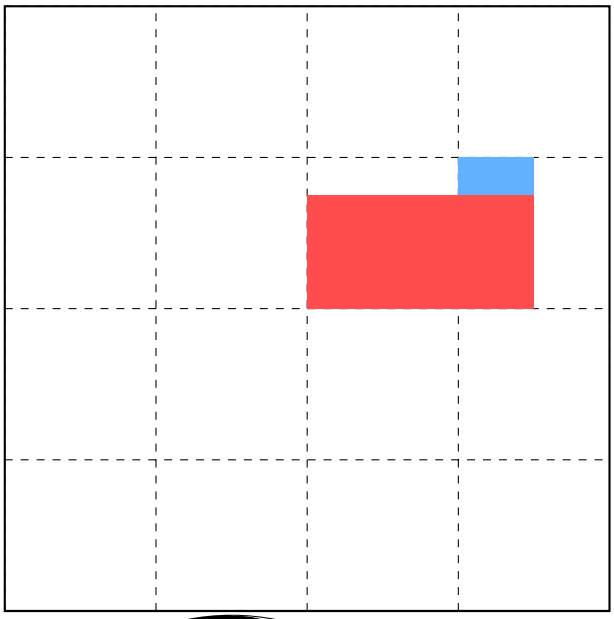
arc 三元组定义 (0:45:3mm) 表示从 0 度到 45 度，半径为 3mm 的圆弧

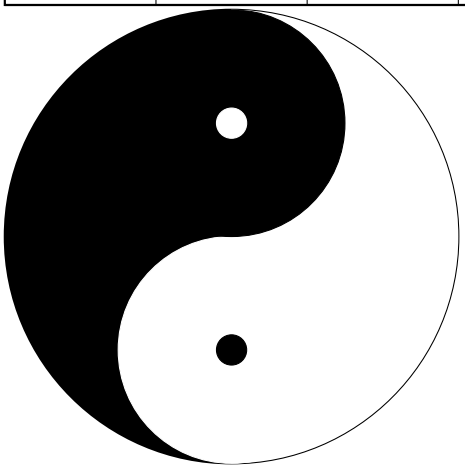




填充用法:

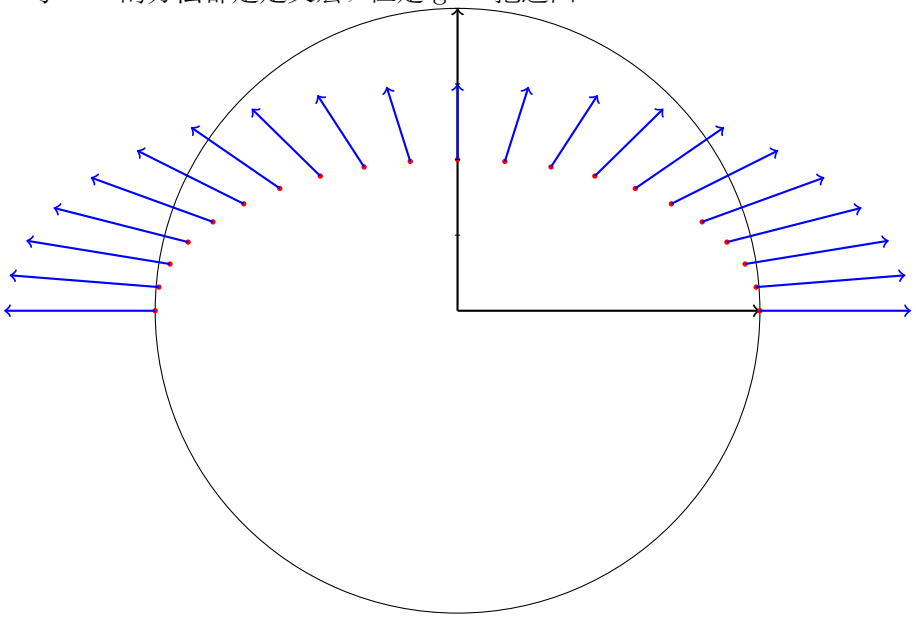
```
\begin{tikzpicture}[scale=0.5]
\draw [thick] (0,0)--(16,0);
\draw[step=4,dashed] (0,0) grid (16,16);
\draw[thick] (0,0) rectangle (16,16);

\fill[spec!70] (12, 8) rectangle +(2,4);
\fill[red!70] (8,8) rectangle +(6,3);
\end{tikzpicture}

```





1.2　数学计算

because TikZ only accepts fully expandable input
The \pgfmathparse macro is not expandable and can't be used inside coordinates. Placing \ pgfmathresult behind it, like \ pgfmathresult, which is expandable in the coordinates
然后，就是 sin，cos 函数默认是以角度为参数的，想要弧度为参数的话使用 sin(x r),r 代表使用弧度
对 foreach 循环中的变量进行计算，可以参考如下链接提供的方法: http://tex.stackexchange.com/questions/132982/numbering-nodes-in-a-for-loop 或者参考我的代码: getx 与 setx 的方法都是定义宏，但是 getx 把返回



值也作为一个参数传进去了

MiKTeX 的 Package Manager，还是 TeX Live 的 tlmgr，都比手工安装宏包容易得多。没有被 MiKTeX 或 TeX Live 仓库收集的宏包很少见。