

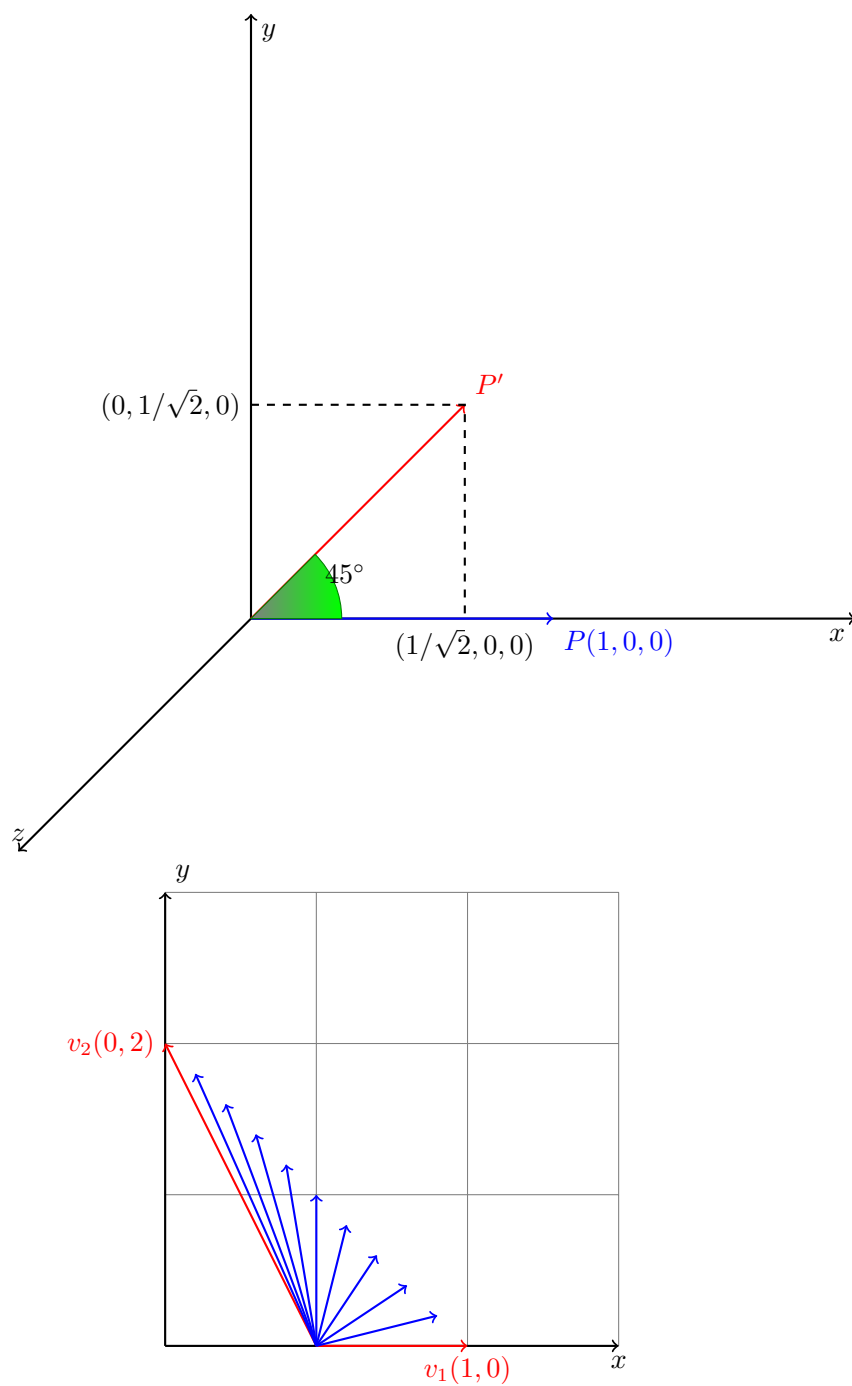
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第一章 tikz/pgf 作图

1.1 基本图元

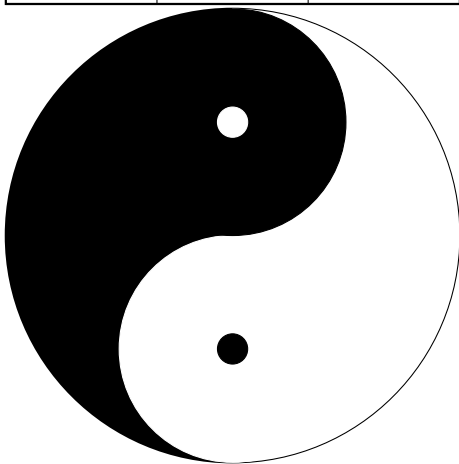
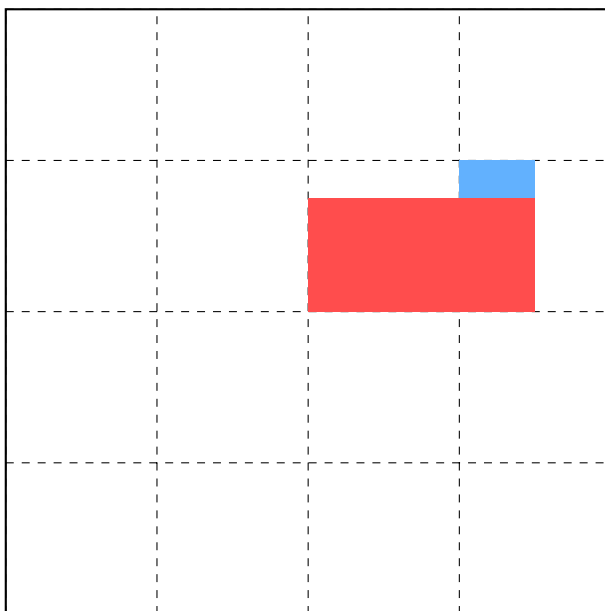
```
1 \begin{tikzpicture}[scale=4]
2
3 \coordinate (O) at (0,0,0);
4 \coordinate (X) at (1,0,0);
5 \coordinate (P) at (0.7071,0.7071,0);
6 \draw[domain=-2:2,samples=100,smooth];
7 {\draw[color=black,thick,->] (0,0,0) -- (2,0,0) node[anchor=north east]{$x$};}%
8 {\draw[color=black,thick,->] (0,0,0) -- (0,2,0) node[anchor=north west]{$y$};}%
9 {\draw[color=black,thick,->] (0,0,0) -- (0,0,2) node[anchor=south]{$z$};}%
10 \draw[color=blue,thick,->] (0,0,0) -- (1,0,0) node[anchor = north west]{$P(1,0,0)$};
11 \draw[color=red,thick,->] (0,0,0) -- (0.7071,0.7071,0) node[anchor = south west]{$P'$};
12 \draw [thick, dashed] (0,0.7071,0) node[left] {$$(0,1/\sqrt{2},0)$`} -- (0.7071,0.7071,0)
13 -- (0.7071,0,0) node[anchor=north]{$$(1/\sqrt{2},0,0)$`};
14 pic ["$\theta$",draw,->] {angle = X--O--P};
15 \end{tikzpicture}
16
```

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:

```
1 \begin{tikzpicture}[scale=0.5]
2 \draw [thick] (0,0)--(16,0);
3 \draw[step=4,dashed] (0,0) grid (16,16);
4 \draw[thick] (0,0) rectangle (16,16);
5
6 \fill[spec!70] (12, 8) rectangle +(2,4);
7 \fill[red!70] (8,8) rectangle +(6,3);
8 \end{tikzpicture}
9
```



1.2 数学计算

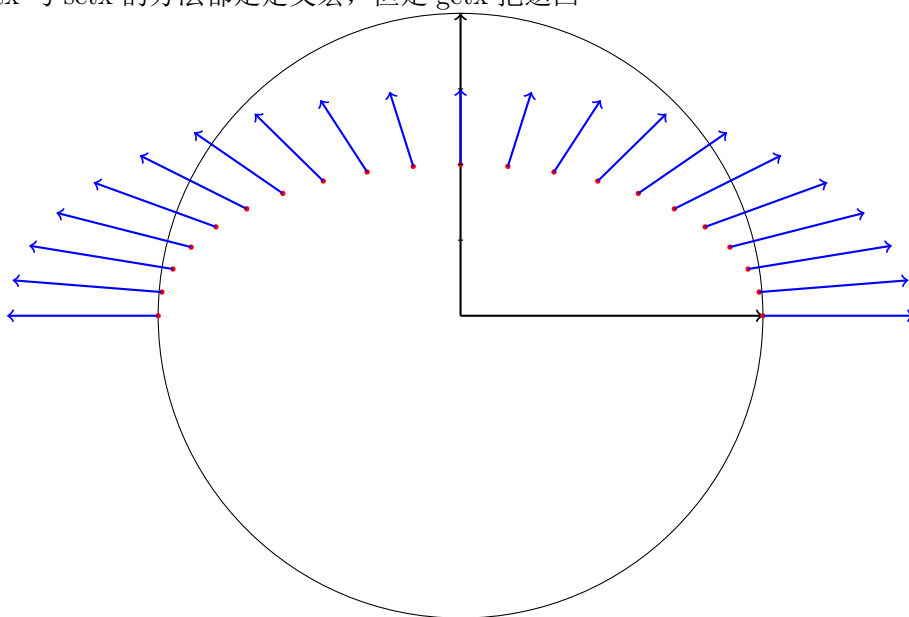
because TikZ only accepts fully expandable input

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。