三点画圆

In[ ]:=
```
pts = RandomReal[3, {3, 2}]
```
伪随机实数

Out[ ]=
```
{{0.174611, 1.7197}, {1.2044, 1.64921}, {2.75631, 2.19113}}
```

方式一

In[ ]:=
```
Circumsphere[pts]
```
外接球

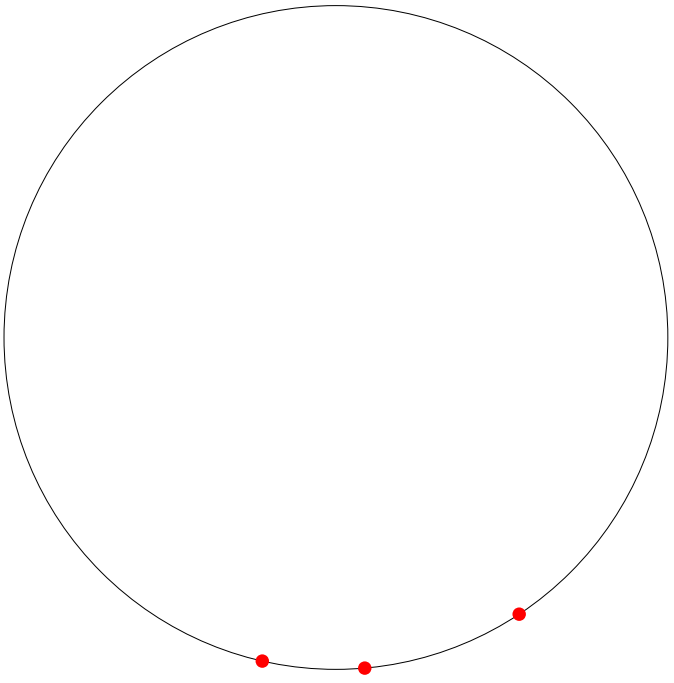
Out[ ]=
```
Sphere[{0.914585, 4.97223}, 3.33564]
```

In[ ]:=
```
RegionMember[Circumsphere[pts], {x, y}]
```
区域成员　外接球

Out[ ]=
$$(x \mid y) \in \mathbb{R} \;\&\&\; (-0.914585 + x)^2 + (-4.97223 + y)^2 == 11.1265$$

In[ ]:=
```
Graphics[{Circumsphere[pts], Red, PointSize[Large], Point[pts]}]
```
图形　外接球　红色　点的大小　大　点

Out[ ]=

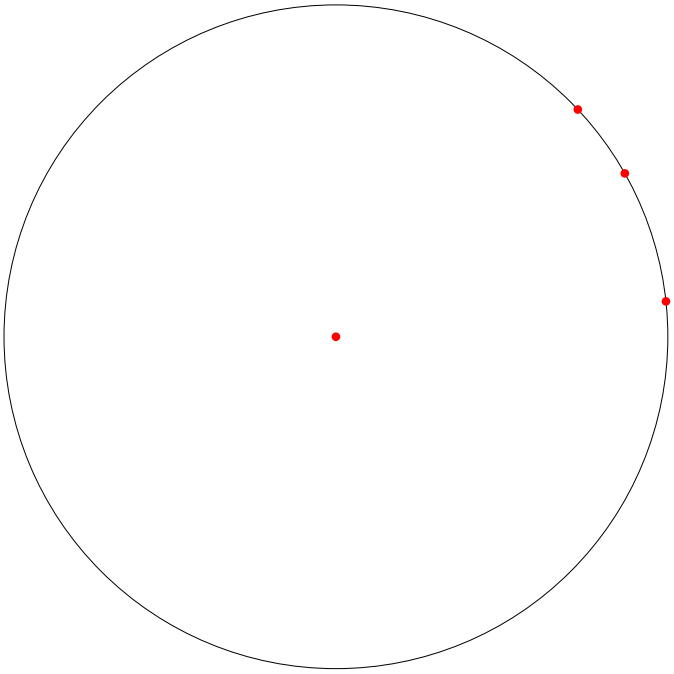


方式二

In[ ]:=
```
(*版本10前解法*)
dis = Total[({x, y} - #)^2] &;
      总计
{center} = Solve[Equal @@ dis /@ pts, {x, y}, Reals]
           解方程 恒等                  实数域
Graphics[{Circle[{x, y}, Sqrt@dis@pts[[1]]],
图形      圆              平方根
   Red, PointSize@Medium, Point[pts ~ Join ~ {{x, y}}]} /. center]
   红色 点的大小      中      点          连接
```

Out[ ]=
```
{{x → -0.490076, y → -0.0920344}}
```

Out[ ]=



方式三

计算三角形的外心

In[ ]:=
```
center3 = TriangleCenter[pts, "Circumcenter"]
          三角形中心
```

Out[ ]=
```
{-0.490076, -0.0920344}
```

In[ ]:=
```
r3 = Norm[pts[[1]] - center3]
     模
```

Out[ ]=
```
1.3782
```

In[ ]:=
```
Graphics[{Circle[center3, r3], Red, PointSize[Large], Point@pts, Point@center3}]
```
图形 圆 红色 点的大小 大 点 点

Out[ ]=