

```
In[1]:= Clear[BestCir, gpts, mX, vY, abc];
BestCir[gpts_] :=
Module[{mX, vY, abc}, mX = Transpose[Append[Transpose[gpts], Array[1 &, Length[gpts]]]];
vY = (#[[1]]^2 + #[[2]]^2) & /@ gpts;
abc = Last[Transpose[
RowReduce[Transpose[Append[Transpose[Transpose[mX].mX], Transpose[mX].vY]]]]];
{{abc[[1]] / 2, abc[[2]] / 2}, Sqrt[abc[[3]] + (abc[[1]] / 2)^2 + (abc[[2]] / 2)^2]]]
```

```
In[3]:= mypts = {{5, 2}, {-1, 5}, {3, -2}, {3, 4.5}, {-5 / 2, 3},
{1, 5}, {4, 3}, {-3, 1}, {-3 / 2, 4}, {1, -3}, {-2, -1}, {4, -1}};
```

```
In[4]:= mypts = {{5, 2}, {-1, 5}, {3, -2}};
```

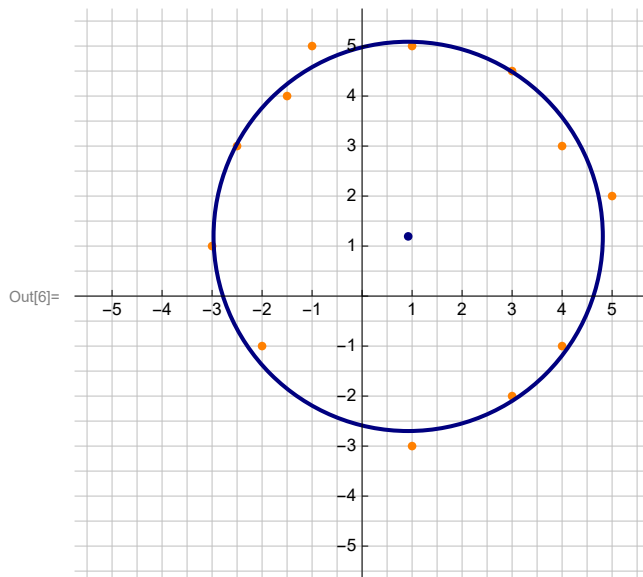
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In[4]:= Length[mypts]
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Out[4]= 12
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In[5]:= cir = N[BestCir[mypts]]
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Out[5]= {{0.922151, 1.19377}, 3.89255}
```

```
In[6]:= Graphics[
{{PointSize[0.015], RGBColor[1, 0.5, 0], Point[#] & /@ mypts}, {RGBColor[0, 0, 0.5],
PointSize[0.015], Point[cir[[1]]], Thickness[0.007], Circle[cir[[1]], cir[[2]]}},
GridLines -> {Range[-20, 20, 1 / 2], Range[-20, 20, 1 / 2]},
GridLinesStyle -> {{GrayLevel[0.75]}, {GrayLevel[0.75]}},
Axes -> True, Ticks -> {Range[-7, 7], Range[-7, 7]}, Frame -> False,
PlotRange -> {{-5.75, 5.75}, {-5.75, 5.75}}, ImageSize -> 300]
```



```
In[7]:= mypts = {{5, 2}, {-1, 5}, {3, -2}, {3, 4.5}, {-5 / 2, 3},
{1, 5}, {4, 3}, {-3, 1}, {-3 / 2, 4}, {1, -3}, {-2, -1}, {4, -1}};
```

```
In[8]:= mypts = ((4 {Cos[2 Pi #[[1]], Sin[2 Pi #[[1]]]} + 1 / 70 {#[[2]], #[[3]]}) & /@
  ((RandomReal[#, 3]) & /@ Range[100]));
```

```
cir = N[BestCir[mypts]];
```

```
Graphics[
```

```
{ {PointSize[0.015], RGBColor[1, 0.5, 0], Point[#] & /@ mypts}, {RGBColor[0, 0, 0.5],
  PointSize[0.015], Point[cir[[1]], Thickness[0.007], Circle[cir[[1]], cir[[2]]]}},
GridLines → {Range[-20, 20, 1 / 2], Range[-20, 20, 1 / 2]},
GridLinesStyle → {{GrayLevel[0.75]}, {GrayLevel[0.75]}},
Axes → True, Ticks → {Range[-7, 7], Range[-7, 7]}, Frame → False,
PlotRange → {{-5.75, 5.75}, {-5.75, 5.75}}, ImageSize → 400]
```

