In[176]:=
```
(*Kodutöö NR 1
 Siim Erik Pugal
 179411YAFB*)
file =
  ReadList[ "http://www.staff.ttu.ee/~mvaljas/pakett/vruut.txt", {Number, Number}];
"Andmed maatrikskujul:"
file // MatrixForm
"Nurgad:"
nurk = Table[file[[i, 1]], {i, 1, Length[file]}]
"Raadiused:"
raadius = Table[file[[i, 2]], {i, 1, Length[file]}]
"Andmed Descartes'i koordinaadistikus:"
data = Table[{raadius[[i]] * Cos[nurk[[i]]], raadius[[i]] * Sin[nurk[[i]]]},
  {i, 1, Length[file]}]
"Keskpunkt:"
middlepoint = LeastSquares[data, raadius]
"Uued raadiused:"
λ = Length[data];
uusraadius = Table[
  Sqrt[(data[[i]][[1]] - middlepoint[[1]])^2 + (data[[i]][[2]] - middlepoint[[2]])^2],
  {i, 1, λ}]
"min, kesk ja max raadused"
min = Min[uusraadius]
kesk = Mean[uusraadius]
max = Max[uusraadius]
"Joonis:"
PUNKTID = Graphics[Table[{Black, PointSize[0.02], Point[
      {raadius[[i]] * Cos[nurk[[i]]], raadius[[i]] * Sin[nurk[[i]]]}]}, {i, 1, λ}]];
KESKPUNKT = Graphics[{Black, PointSize[0.02], Point[middlepoint]}];
SISERING = Graphics[{Red, Circle[middlepoint, min]}];
KESKRING = Graphics[{Green, Circle[middlepoint, kesk]}];
VALISRING = Graphics[{Blue, Circle[middlepoint, max]}];
Show [PUNKTID, KESKPUNKT, SISERING, KESKRING, VALISRING,
 GridLines → Automatic, Frame → True, Axes → True, AxesOrigin → Automatic]
```

Out[177]= Andmed maatrikskujul:

Out[178]//MatrixForm=

0.433	2.306
0.65	2.385
0.976	2.389
1.168	2.31
1.51	2.304
1.721	2.164
2.042	2.181
2.319	1.951
2.628	1.995
3.02	1.8
−2.999	1.739
−2.543	1.713
−2.221	1.629
−1.805	1.707
−1.493	1.645
−1.101	1.888
−0.745	1.856
−0.448	2.065
−0.14	2.025
0.099	2.264

Out[179]= Nurgad:

Out[180]= {0.433, 0.65, 0.976, 1.168, 1.51, 1.721, 2.042, 2.319, 2.628, 3.02, −2.999, −2.543, −2.221, −1.805, −1.493, −1.101, −0.745, −0.448, −0.14, 0.099}

Out[181]= Raadiused:

Out[182]= {2.306, 2.385, 2.389, 2.31, 2.304, 2.164, 2.181, 1.951, 1.995, 1.8, 1.739, 1.713, 1.629, 1.707, 1.645, 1.888, 1.856, 2.065, 2.025, 2.264}

Out[183]= Andmed Descartes'i koordinaadistikus:

Out[184]= {{2.09318, 0.967588}, {1.89866, 1.44337}, {1.33865, 1.97872}, {0.905502, 2.12513}, {0.139988, 2.29974}, {−0.32382, 2.13963}, {−0.990085, 1.94332}, {−1.32731, 1.42991}, {−1.73762, 0.980163}, {−1.78671, 0.218328}, {−1.72135, −0.247129}, {−1.41516, −0.965242}, {−0.986113, −1.29662}, {−0.396141, −1.6604}, {0.127846, −1.64002}, {0.854706, −1.68346}, {1.36432, −1.25832}, {1.86122, −0.894483}, {2.00519, −0.282575}, {2.25291, 0.22377}}

Out[185]= Keskpunkt:

Out[186]= {0.2884, 0.407887}

Out[187]= Uued raadiused:

Out[189]= {1.88958, 1.91446, 1.88959, 1.82475, 1.89767, 1.83678, 1.99802, 1.91182, 2.10529, 2.08375, 2.1138, 2.18806, 2.12832, 2.17862, 2.0542, 2.16666, 1.98339, 2.04204, 1.85043, 1.97312}

Out[190]= min, kesk ja max raadused

Out[191]= 1.82475

Out[192]= 2.00152

Out[193]= 2.18806

Out[194]= Joonis:

Out[200]=