In[734]:=
```
LX = {{21, 1 / .00634296}, {80, 1 / .00366724}, {150, 1 / .00138689}}
LY = {{21, 1 / .0252088}, {80, 1 / .0272929}, {150, 1 / .0164848}}
CX = {{12, 1 / .035892}, {51, 1 / .0278502}, {100, 1 / .0159368}}
CY = {{12, 1 / .0371539}, {51, 1 / .0272929}, {100, 1 / .0164848}}
```

Out[734]= {{21, 157.655}, {80, 272.685}, {150, 721.038}}

Out[735]= {{21, 39.6687}, {80, 36.6396}, {150, 60.6619}}

Out[736]= {{12, 27.8614}, {51, 35.9064}, {100, 62.7479}}

Out[737]= {{12, 26.9151}, {51, 36.6396}, {100, 60.6619}}

In[738]:=
```
FLX = NonlinearModelFit[LX, w * Sqrt[(1 + (z / z0) ^2)], {w, z0}, z]
FLY = NonlinearModelFit[LY, w * Sqrt[(1 + (z / z0) ^2)], {w, z0}, z]
FCX = NonlinearModelFit[CX, w * Sqrt[(1 + (z / z0) ^2)], {w, z0}, z]
FCY = NonlinearModelFit[CY, w * Sqrt[(1 + (z / z0) ^2)], {w, z0}, z]
```

Out[738]= FittedModel[$94.0721 \sqrt{1 + 0.00223605\, z^2}$]

Out[739]= FittedModel[$35.1836 \sqrt{1 + 0.0000776577\, z^2}$]

Out[740]= FittedModel[$25.6722 \sqrt{1 + 0.000478155\, z^2}$]

Out[741]= FittedModel[$25.509 \sqrt{1 + 0.000457343\, z^2}$]

In[742]:=
```
Show[ListPlot[{LX, LY, CX, CY},
  PlotLabel → "Beam Waist", AxesLabel → {Z , Waist}, PlotRange → All],
 Plot[{FLX[z], FLY[z], FCX[z], FCY[z]}, {z, 0, 200}, PlotLegends → "Expressions"]]
```

Out[742]=