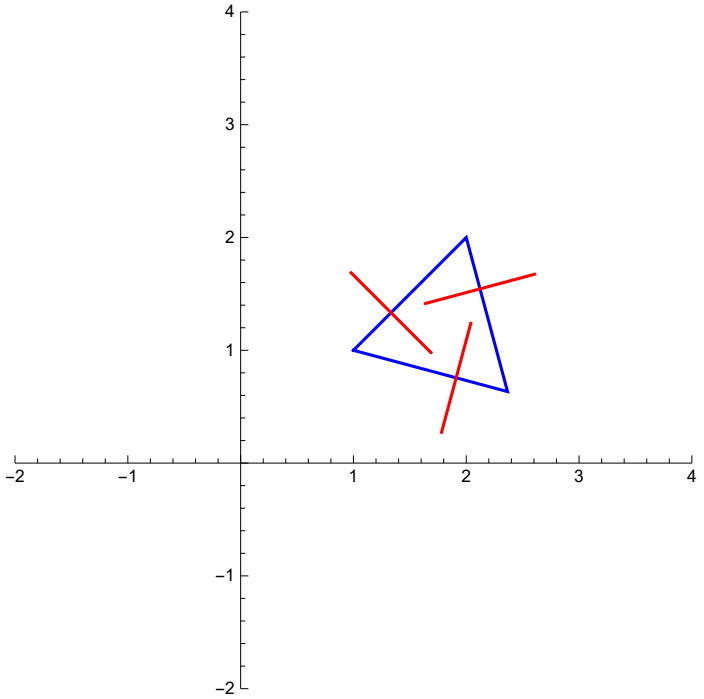
In[217]:=
```
Clear[dist, thirdPoint, getRotated, cutWall, testL, maxL]
dist[{x1_, y1_}, {x2_, y2_}] := Sqrt[(x1 - x2)^2 + (y1 - y2)^2]
getRotated[k_] := Module[{a},
  a = ArcTan[k];
  {{0, 0}, {Cos[a], Sin[a]}}
 ]
thirdPoint[p1_, p2_, ratio_: 1/2, h_: 0] :=
 Module[{side = dist[p1, p2], pm = (1 - ratio) * p1 + ratio * p2, k, v01, height = h},
  If[Abs[h - 0] < 0.0001, height = side/2 Sqrt[3]];
  If[Abs[p1[[1]] - p2[[1]]] < 0.00001, {p1[[1]] + height, pm[[2]]},
   If[Abs[p1[[2]] - p2[[2]]] < 0.00001, {pm[[1]], p1[[2]] + height},
    k = -(p1[[1]] - p2[[1]])/(p1[[2]] - p2[[2]]); v01 = getRotated[k];
    {v01[[2, 1]] * height + pm[[1]], v01[[2, 2]] * height + pm[[2]]}]]]
cutWall[p1_, p2_, p3_, l_] := Module[{limit = dist[p1, p2] * Sqrt[1/3]},
  If[l/2 < limit, SortBy[#, First] & /@
    {{thirdPoint[p1, p2, 1/3, l/2], thirdPoint[p1, p2, 1/3, -l/2]},
     {thirdPoint[p2, p3, 1/3, l/2], thirdPoint[p2, p3, 1/3, -l/2]},
     {thirdPoint[p3, p1, 1/3, l/2], thirdPoint[p3, p1, 1/3, -l/2]}}, {}]]
testL[p1_, p2_, p3_, l_] := Module[{cLines = cutWall[p1, p2, p3, l]},
  If [Length@cLines ≥ 1, ListLinePlot[{{p1, p2, p3, p1},
     cLines[[1]], cLines[[2]], cLines[[3]]}, PlotRange → {{-2, 4}, {-2, 4}},
    AspectRatio → 1, PlotStyle → {Blue, Red, Red, Red}]
   , "Impossible to cut"]]
maxL[p1_, p2_] := 2 * dist[p1, p2] * Sqrt[1/3];
```

Test cases

simple case

In[224]:=
```
p1 = {1, 1}; p2 = {2, 2}; p3 = thirdPoint[p1, p2];
testL[p1, p2, p3, 1]
```

Out[225]=



In[215]:=
```
N[cutWall[p1, p2, p3, 1], 10]
```
численное приближение

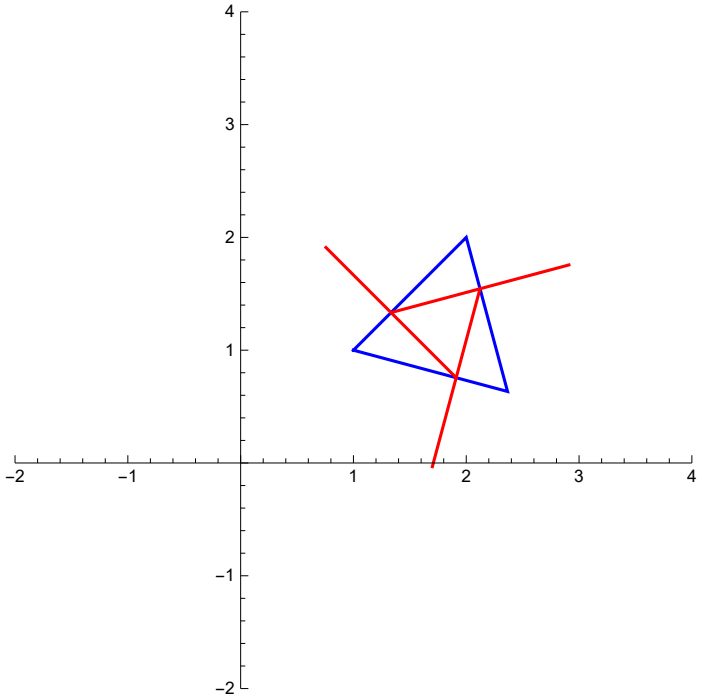
Out[215]=
```
{{{0.9797799427, 1.686886724}, {1.686886724, 0.9797799427}},
 {{1.639045555, 1.415248676}, {2.604971381, 1.674067721}},
 {{1.781274080, 0.2730201510}, {2.040093125, 1.238945977}}}

0.900320631441114`
```

almost max

In[226]:=
```
p1 = {1, 1}; p2 = {2, 2}; p3 = thirdPoint[p1, p2];
testL[p1, p2, p3, maxL[p1, p2] - 0.001]
```

Out[227]=



In[229]:=
```
N[cutWall[p1, p2, p3, maxL[p1, p2] - 1 / 1000], 10]
```
численное приближение

Out[229]=
```
{{{0.7563366175, 1.910330049}, {1.910330049, 0.7563366175}},
 {{1.333816296, 1.333462743}, {2.910200640, 1.755853655}},
 {{1.699488147, -0.03220910754}, {2.121879058, 1.544175236}}}
```

max

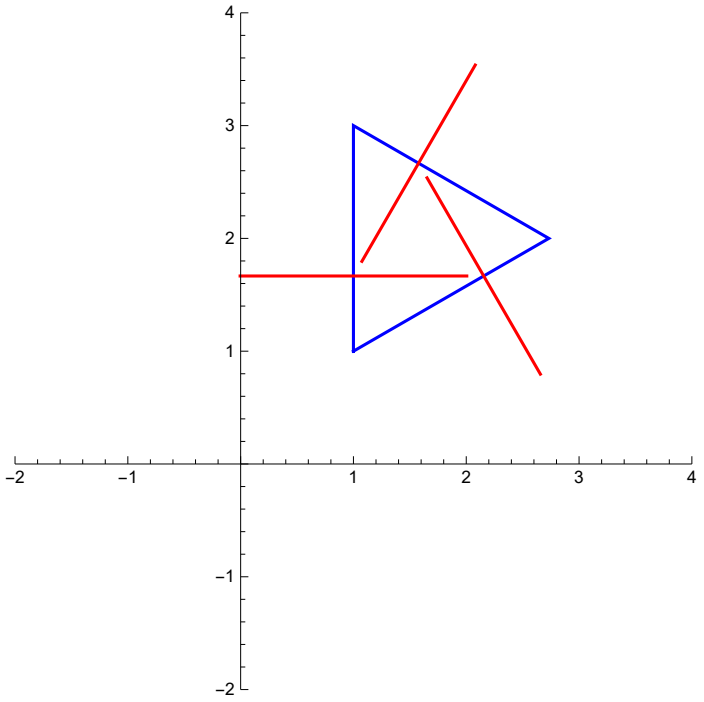
In[173]:=
```
p1 = {1, 1}; p2 = {2, 2}; p3 = thirdPoint[p1, p2];
testL[p1, p2, p3, maxL[p1, p2] + 0.0001]
```

Out[174]=
```
Impossible to cut
```

x1 == x2

In[230]:=
```
p1 = {1, 1}; p2 = {1, 3}; p3 = thirdPoint[p1, p2];
testL[p1, p2, p3, maxL[p1, p2] - 3 / 10]
```

Out[231]=



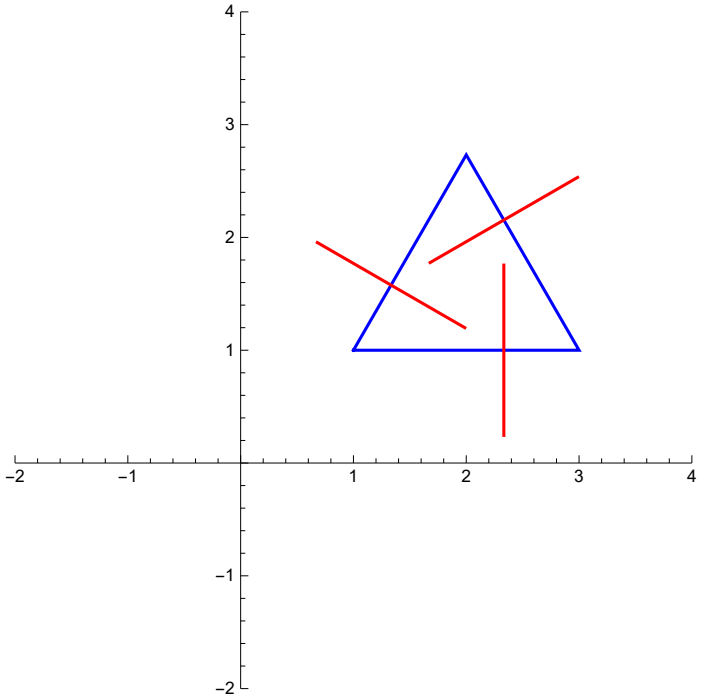
In[232]:=
```
N[cutWall[p1, p2, p3, maxL[p1, p2] - 3 / 10], 10]
```
численное приближение

Out[232]=
```
{{{-0.004700538379, 1.666666667}, {2.004700538, 1.666666667}},
 {{1.075000000, 1.796570477}, {2.079700538, 3.536762856}},
 {{1.652350269, 2.536762856}, {2.657050808, 0.7965704772}}}
```

y1== y2

In[250]:=
```
p1 = {3, 1}; p2 = {1, 1}; p3 = thirdPoint[p1, p2];
{p1, p2, p3} = SortBy[{p1, p2, p3}, First];
                 сортировать по       первый
testL[p1, p2, p3, maxL[p1, p2] - 0.8]
l = maxL[p1, p2] - 0.8
```

Out[252]=



In[254]:=
```
N[cutWall[p1, p2, p3, maxL[p1, p2] - 8 / 10], 10]
```
численное приближение

Out[254]=
```
{{{0.6797434948, 1.954700538}, {1.986923172, 1.200000000}},
 {{1.679743495, 1.777350269}, {2.986923172, 2.532050808}},
 {{2.333333333, 0.2452994616}, {2.333333333, 1.754700538}}}
```