In[30]:=
```
Game = {{ {4, 2}, {1, 1} }, {{0, 0}, {2, 4}}}; MatrixForm[Game]
```

Out[30]//MatrixForm=

$$\begin{pmatrix} \begin{pmatrix} 4 \\ 2 \end{pmatrix} & \begin{pmatrix} 1 \\ 1 \end{pmatrix} \\ \begin{pmatrix} 0 \\ 0 \end{pmatrix} & \begin{pmatrix} 2 \\ 4 \end{pmatrix} \end{pmatrix}$$

In[34]:=
```
u1 = Table[Game[[i, j, 1]], {i, 1, 2}, {j, 1, 2}];
u2 = Table[Game[[i, j, 2]], {i, 1, 2}, {j, 1, 2}];
MatrixForm[u1]
MatrixForm[u2]
```

Out[36]//MatrixForm=

$$\begin{pmatrix} 4 & 1 \\ 0 & 2 \end{pmatrix}$$

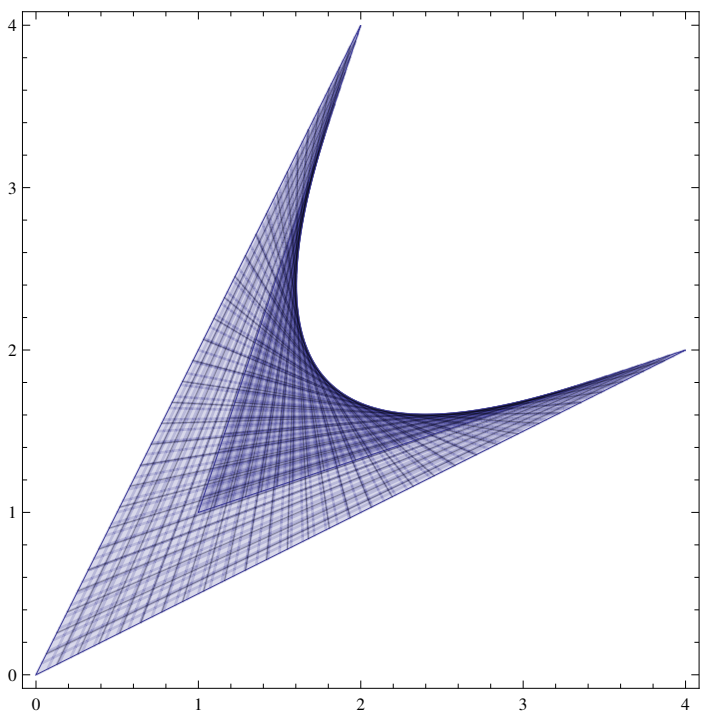
Out[37]//MatrixForm=

$$\begin{pmatrix} 2 & 1 \\ 0 & 4 \end{pmatrix}$$

In[44]:=
```
Eu[p_, q_] := p q Game[[1, 1]] + (1 - p) q Game[[2, 1]] +
  p (1 - q) Game[[1, 2]] + (1 - p) (1 - q) Game[[2, 2]]
```

In[50]:=
```
UPS = ParametricPlot[ Eu[p, q], {p, 0, 1},
  {q, 0, 1}, Mesh → 30, AspectRatio → Automatic]
```

Out[50]=




In[53]:=
```
{qsol} = q /. Solve[Eu[1, q][[1]] == Eu[0, q][[1]], q]
```

Out[53]= $\left\{\frac{1}{5}\right\}$

In[54]:=
```
{psol} = p /. Solve[Eu[p, 1][[2]] == Eu[p, 0][[2]], p]
```

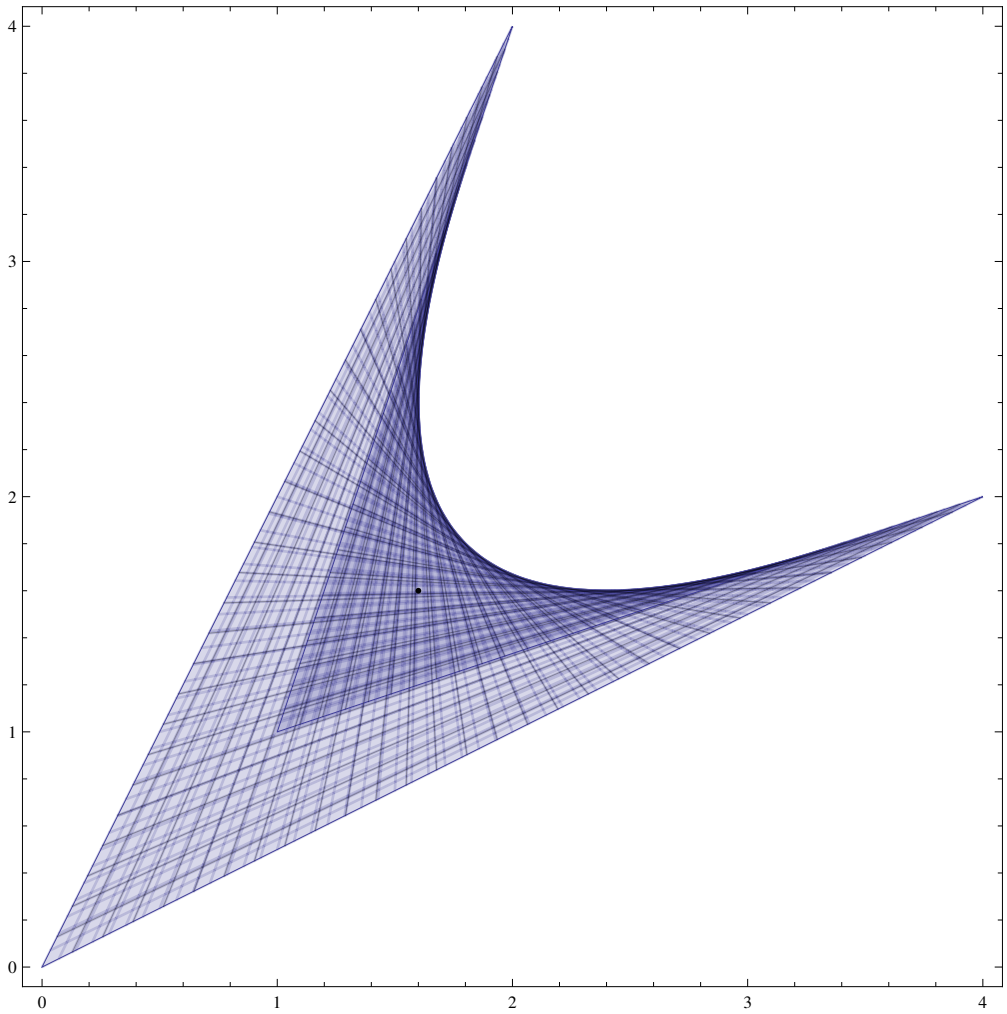
Out[54]= $\left\{\frac{4}{5}\right\}$

In[42]:=
```
Eu[psol, qsol]
```

Out[42]= $\left\{\frac{8}{5}, \frac{8}{5}\right\}$

In[51]:=
```
Show[ UPS, Graphics[Point[Eu[psol, qsol]]]]
```

Out[51]=




In[57]:=
```
Maximize[ {Eu[p, q][[1]], Eu[p, q][[1]] / Eu[psol, qsol][[1]] ==
    Eu[p, q][[2]] / Eu[psol, qsol][[2]] && 0 ≤ p ≤ 1} , {p, q} ]
```

$\left\{\frac{9}{5}, \left\{p \to \frac{3}{5}, q \to \frac{2}{5}\right\}\right\}$