In[]:=
```
p = {{1/10, 7/10, 2/10}, {6/10, 3/10, 1/10}, {7/10, 2/10, 1/10}}
```

Out[]=
$$\left\{\left\{\frac{1}{10}, \frac{7}{10}, \frac{1}{5}\right\}, \left\{\frac{3}{5}, \frac{3}{10}, \frac{1}{10}\right\}, \left\{\frac{7}{10}, \frac{1}{5}, \frac{1}{10}\right\}\right\}$$

In[]:=
```
{s, j} = JordanDecomposition[p]
```

Out[]=
$$\left\{\left\{\left\{1, \frac{-49-9\sqrt{29}}{53+7\sqrt{29}}, \frac{49-9\sqrt{29}}{-53+7\sqrt{29}}\right\}, \left\{1, \frac{2\,(14+3\sqrt{29})}{53+7\sqrt{29}}, \frac{2\,(-14+3\sqrt{29})}{-53+7\sqrt{29}}\right\}, \{1, 1, 1\}\right\}, \left\{\{1, 0, 0\}, \left\{0, \frac{1}{20}\,(-5-\sqrt{29}), 0\right\}, \left\{0, 0, \frac{1}{20}\,(-5+\sqrt{29})\right\}\right\}\right\}$$

In[]:=
```
Limit[ {pi, pj, pk}.s.(j^n).Inverse[s], n → Infinity]
```

Out[]=
$$\left\{\frac{61}{149}\,(\text{pi}+\text{pj}+\text{pk}), \frac{67}{149}\,(\text{pi}+\text{pj}+\text{pk}), \frac{21}{149}\,(\text{pi}+\text{pj}+\text{pk})\right\}$$

Out[]=
$$\left\{\left\{\left\{1, \frac{-49-9\sqrt{29}}{53+7\sqrt{29}}, \frac{49-9\sqrt{29}}{-53+7\sqrt{29}}\right\}, \left\{1, \frac{2\,(14+3\sqrt{29})}{53+7\sqrt{29}}, \frac{2\,(-14+3\sqrt{29})}{-53+7\sqrt{29}}\right\}, \{1, 1, 1\}\right\}, \left\{\{1, 0, 0\}, \left\{0, \frac{1}{20}\,(-5-\sqrt{29}), 0\right\}, \left\{0, 0, \frac{1}{20}\,(-5+\sqrt{29})\right\}\right\}\right\}$$

In[]:=
```
p = {{0, 0, 0, 1}, {4/8, 0, 4/8, 0}, {0, 5/8, 0, 3/8}, {6/8, 0, 2/8, 0}}
{s, j} = JordanDecomposition[p]
Limit[{pi, pj, pk, pl}.s.(j^n).Inverse[s], n → Infinity]
```

Out[]=
$$\left\{\{0, 0, 0, 1\}, \left\{\frac{1}{2}, 0, \frac{1}{2}, 0\right\}, \left\{0, \frac{5}{8}, 0, \frac{3}{8}\right\}, \left\{\frac{3}{4}, 0, \frac{1}{4}, 0\right\}\right\}$$

Out[]=
$$\left\{\left\{\{-1, 1, -4\sqrt{\frac{2}{5}}, 4\sqrt{\frac{2}{5}}\}, \left\{1, 1, -\frac{22}{5}, -\frac{22}{5}\right\}, \left\{-1, 1, \frac{19}{\sqrt{10}}, -\frac{19}{\sqrt{10}}\right\}, \{1, 1, 1, 1\}\right\}, \left\{\{-1, 0, 0, 0\}, \{0, 1, 0, 0\}, \left\{0, 0, -\frac{\sqrt{\frac{5}{2}}}{4}, 0\right\}, \left\{0, 0, 0, \frac{\sqrt{\frac{5}{2}}}{4}\right\}\right\}\right\}$$

Out[]=
```
{Indeterminate, Indeterminate, Indeterminate, Indeterminate}
```