

Example A

`P = { {0, 1, 0}, {0.3, 0, 0.7}, {0, 1, 0} }; MatrixForm[P]`

$$\begin{pmatrix} 0 & 1 & 0 \\ 0.3 & 0 & 0.7 \\ 0 & 1 & 0 \end{pmatrix}$$

`P2 = MatrixPower[P, 2]; MatrixForm[P2]`

$$\begin{pmatrix} 0.3 & 0. & 0.7 \\ 0. & 1. & 0. \\ 0.3 & 0. & 0.7 \end{pmatrix}$$

`P3 = MatrixPower[P, 3]; MatrixForm[P3]`

$$\begin{pmatrix} 0. & 1. & 0. \\ 0.3 & 0. & 0.7 \\ 0. & 1. & 0. \end{pmatrix}$$

`P4 = MatrixPower[P, 4]; MatrixForm[P4]`

$$\begin{pmatrix} 0.3 & 0. & 0.7 \\ 0. & 1. & 0. \\ 0.3 & 0. & 0.7 \end{pmatrix}$$

`P5 = MatrixPower[P, 5]; MatrixForm[P5]`

$$\begin{pmatrix} 0. & 1. & 0. \\ 0.3 & 0. & 0.7 \\ 0. & 1. & 0. \end{pmatrix}$$

Example B

`P = { {0.6, 0.3, 0.1}, {0, 1, 0}, {0, 0, 1} }; MatrixForm[P]`

$$\begin{pmatrix} 0.6 & 0.3 & 0.1 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{pmatrix}$$

`P2 = MatrixPower[P, 2]; MatrixForm[P2]`

$$\begin{pmatrix} 0.36 & 0.48 & 0.16 \\ 0. & 1. & 0. \\ 0. & 0. & 1. \end{pmatrix}$$

`P3 = MatrixPower[P, 3]; MatrixForm[P3]`

$$\begin{pmatrix} 0.216 & 0.588 & 0.196 \\ 0. & 1. & 0. \\ 0. & 0. & 1. \end{pmatrix}$$

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P4 = MatrixPower[P, 4]; MatrixForm[P4]
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$$\begin{pmatrix} 0.1296 & 0.6528 & 0.2176 \\ 0. & 1. & 0. \\ 0. & 0. & 1. \end{pmatrix}$$

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P11 = MatrixPower[P, 11]; MatrixForm[P11]
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$$\begin{pmatrix} 0.00362797 & 0.747279 & 0.249093 \\ 0. & 1. & 0. \\ 0. & 0. & 1. \end{pmatrix}$$

Example C

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P = {{0.5, 0.4, 0.1}, {0.3, 0.4, 0.3}, {0.2, 0.3, 0.5}}; MatrixForm[P]
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$$\begin{pmatrix} 0.5 & 0.4 & 0.1 \\ 0.3 & 0.4 & 0.3 \\ 0.2 & 0.3 & 0.5 \end{pmatrix}$$

```
P2 = MatrixPower[P, 2]; MatrixForm[P2]
```

$$\begin{pmatrix} 0.39 & 0.39 & 0.22 \\ 0.33 & 0.37 & 0.3 \\ 0.29 & 0.35 & 0.36 \end{pmatrix}$$

```
P3 = MatrixPower[P, 3]; MatrixForm[P3]
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$$\begin{pmatrix} 0.356 & 0.378 & 0.266 \\ 0.336 & 0.37 & 0.294 \\ 0.322 & 0.364 & 0.314 \end{pmatrix}$$

```
P4 = MatrixPower[P, 4]; MatrixForm[P4]
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$$\begin{pmatrix} 0.3446 & 0.3734 & 0.282 \\ 0.3378 & 0.3706 & 0.2916 \\ 0.333 & 0.3686 & 0.2984 \end{pmatrix}$$

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P15 = MatrixPower[P, 15]; MatrixForm[P15]
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$$\begin{pmatrix} 0.33871 & 0.370968 & 0.290323 \\ 0.33871 & 0.370968 & 0.290323 \\ 0.33871 & 0.370968 & 0.290323 \end{pmatrix}$$