```
mat2 = {{1, 1, 0}, {1, 4, 3}, {0, 3, 1}}; MatrixForm[mat2]   (*  Matrix  *)
                                          行列形式
```

$$\begin{pmatrix} 1 & 1 & 0 \\ 1 & 4 & 3 \\ 0 & 3 & 1 \end{pmatrix}$$

```
base2 = Eigensystem[mat2]
        固有値と固有ベクトルのリスト
 (* Eigenvalues and Eigenvectors    *)
    固有値              固有ベクトル
```

```
{{6, -1, 1}, {{1, 5, 3}, {1, -2, 3}, {-3, 0, 1}}}
```

```
u1 = Transpose[{{1, 5, 3}}]; MatrixForm[u1]
     転置                    行列形式
(*  1st eigenvector  (u1)   *)
```

$$\begin{pmatrix} 1 \\ 5 \\ 3 \end{pmatrix}$$

```
u2 = Transpose[{{1, -2, 3}}]; MatrixForm[u2]
     転置                     行列形式
(*  2nd eigenvector  (u2)   *)
```

$$\begin{pmatrix} 1 \\ -2 \\ 3 \end{pmatrix}$$

```
u3 = Transpose[{{-3, 0, 1}}]; MatrixForm[u3]
     転置                     行列形式
(*   3rd eigenvector  (u3)   *)
```

$$\begin{pmatrix} -3 \\ 0 \\ 1 \end{pmatrix}$$

```
x = Table[g1 * (6) ^t * u1 + g2 * (-1) ^t * u2 + g3 * (1) ^t * u3, {t, 0, 5}];
    リストを作成
(* Obtain x(t)   *)

x[[1]]
(*   Solution at 1st timestep   *)
```

```
{{g1 + g2 - 3 g3}, {5 g1 - 2 g2}, {3 g1 + 3 g2 + g3}}
```

```
x[[2]]
(*   Solution at 2nd timestep   *)
```

```
{{6 g1 - g2 - 3 g3}, {30 g1 + 2 g2}, {18 g1 - 3 g2 + g3}}
```

```
x[[3]]
(*   Solution at 3rd timestep   *)
```

```
{{36 g1 + g2 - 3 g3}, {180 g1 - 2 g2}, {108 g1 + 3 g2 + g3}}
```

```
x[[4]]
(*   Solution at 4th timestep   *)
```

```
{{216 g1 - g2 - 3 g3}, {1080 g1 + 2 g2}, {648 g1 - 3 g2 + g3}}
```

```
x[[5]]
(*   Solution at 5th timestep   *)
```

```
{{1296 g1 + g2 - 3 g3}, {6480 g1 - 2 g2}, {3888 g1 + 3 g2 + g3}}
```

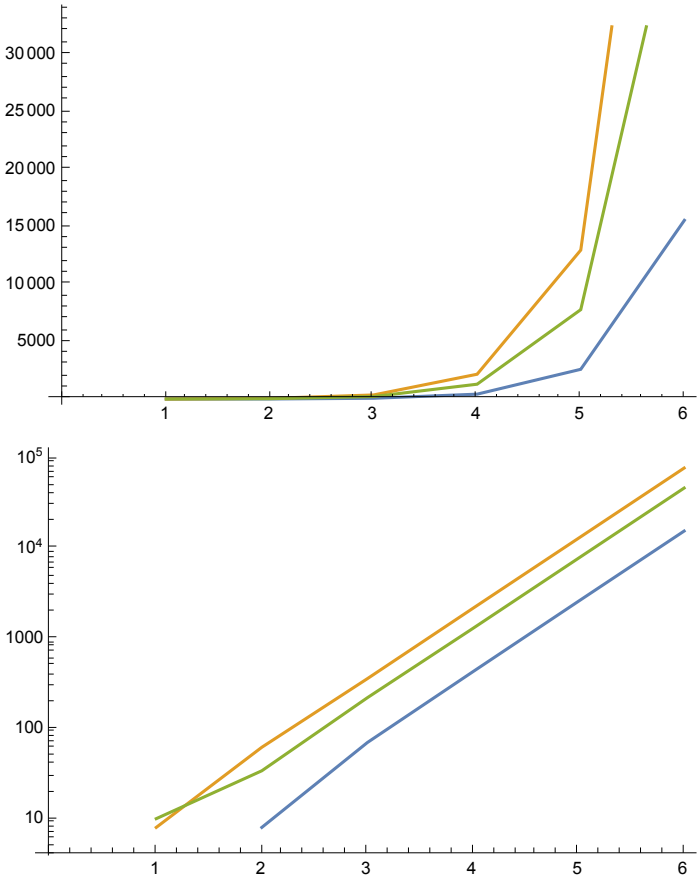
```
xt = Transpose[x];
```
転置

```
zuxt = xt /. {g1 -> 2, g2 -> 1, g3 -> 1};
fig1 = ListPlot[{Flatten[zuxt[[1]]], Flatten[zuxt[[2]]], Flatten[zuxt[[3]]]},
```
リストプ… 平滑化 平滑化 平滑化

```
  Joined → True]        (*    Real axis      *)
```
点の結合 真 実数の頭部

```
fig2 = ListLogPlot[{Flatten[zuxt[[1]]], Flatten[zuxt[[2]]], Flatten[zuxt[[3]]]},
```
リストの対数… 平滑化 平滑化 平滑化

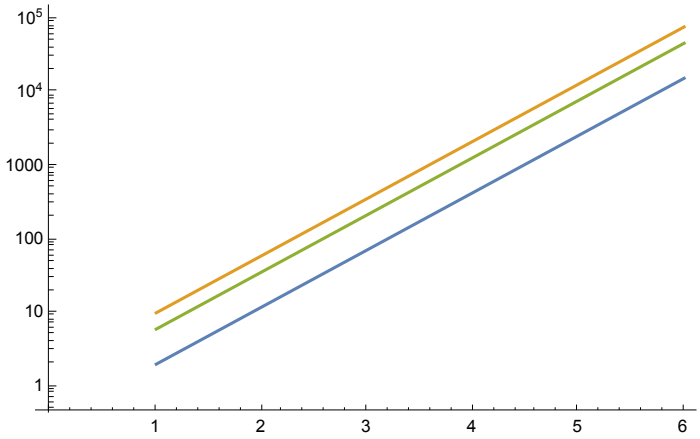
```
  Joined → True]     (*    Semi-Log axis      *)
```
点の結合 真 対数



```
zuxt = xt /. {g1 -> 2, g2 → 0, g3 → 0};
(* If we neglect 2nd and 3rd terms.....          *)
```
If文

```
fig4 = ListLogPlot[
```
リストの対数プロット

```
  {Flatten[zuxt[[1]]], Flatten[zuxt[[2]]], Flatten[zuxt[[3]]]}, Joined → True]
```
平滑化 平滑化 平滑化 点の結合 真




```
Show[fig2, fig4]
```
示す

```
(*       Let's compare these two      *)
```