

a = {{1, 4}, {0, -1}}

{{1, 4}, {0, -1}}

MatrixForm[a]

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

MatrixPower[a, 2] // MatrixForm

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

b = {{3, 1, 7}, {2, 5, 5}, {8, 7, 1}}

MatrixForm[b]

{{3, 1, 7}, {2, 5, 5}, {8, 7, 1}}

$$\begin{pmatrix} 3 & 1 & 7 \\ 2 & 5 & 5 \\ 8 & 7 & 1 \end{pmatrix}$$

b1 = {{2, 1, 6, 6}, {3, 1, 1, -1}, {5, 2, 7, 5}, {8, 3, 8, 4}}

{{2, 1, 6, 6}, {3, 1, 1, -1}, {5, 2, 7, 5}, {8, 3, 8, 4}}

MatrixForm[b1]

$$\begin{pmatrix} 2 & 1 & 6 & 6 \\ 3 & 1 & 1 & -1 \\ 5 & 2 & 7 & 5 \\ 8 & 3 & 8 & 4 \end{pmatrix}$$

MatrixRank[b1]

2

Det[b]

-234

c = {{3, -1, 5}, {1, -2, 1}, {4, 3, -2}}

{{3, -1, 5}, {1, -2, 1}, {4, 3, -2}}

MatrixForm[c]

$$\begin{pmatrix} 3 & -1 & 5 \\ 1 & -2 & 1 \\ 4 & 3 & -2 \end{pmatrix}$$

Inverse[c]

$$\left\{ \left\{ \frac{1}{52}, \frac{1}{4}, \frac{9}{52} \right\}, \left\{ \frac{3}{26}, -\frac{1}{2}, \frac{1}{26} \right\}, \left\{ \frac{11}{52}, -\frac{1}{4}, -\frac{5}{52} \right\} \right\}$$

Clear[A, b]

A = {{1, 2, -1}, {-2, -4, 2}, {1, 3, 2}}

{{1, 2, -1}, {-2, -4, 2}, {1, 3, 2}}

```
x = {x1, x2, x3}
```

```
{x1, x2, x3}
```

```
b = {{1, 2, -1}}
```

```
{{1, 2, -1}}
```

```
LinearSolve[A, b]
```

```
Solve[A.x == b, {x1, x2, x3}]
```

```
{}
```

```
MatrixForm[d]
```

$$\begin{pmatrix} 1 & 2 & -1 \\ -2 & -4 & 2 \\ 1 & 3 & 2 \end{pmatrix};$$

```
e = {{1, 1, -1}}
```

```
{{1, 1, -1}}
```

```
{{1}, {-2}, {-1}}
```

```
{{1}, {1}, {-1}}
```

```
{{1}, {1}, {-1}}
```

```
{{1}, {1}, {-1}}
```

```
MatrixForm[e]
```

```
(1 1 -1)
```

```
(1 -2 -1);
```

```
x = LinearSolve[d, e]
```

LinearSolve::lslc: Coefficient matrix and target vector(s) or matrix do not have the same dimensions. >>

```
LinearSolve[[{1, 2, -1}, {-2, -4, 2}, {1, 3, 2}], {{1, 1, -1}}
```

LinearSolve::lslc: Coefficient matrix and target vector(s) or matrix do not have the same dimensions. >>

```
LinearSolve[[{1, 2, -1}, {-2, -4, 2}, {1, 3, 2}], {{1, 1, -1}}
```