In[ ]:=
```
(* Solution of Linear Equations *)
? Solve
```

Out[ ]=

Symbol

Solve[*expr*, *vars*] attempts to solve the system *expr* of equations or inequalities for the variables *vars*.

Solve[*expr*, *vars*, *dom*] solves over the domain *dom*. Common choices of *dom* are Reals, Integers, and Complexes.

In[ ]:=
```
eqs = {2 x + 3 y == 5, 2 x - 5 y == 1};
var = {x, y};
sol = Solve[eqs, var]
```

Out[ ]= $\left\{\left\{x \to \frac{7}{4}, y \to \frac{1}{2}\right\}\right\}$

In[ ]:=
```
x /. sol[[1]]
```

Out[ ]= $\frac{7}{4}$

In[ ]:=
```
y /. sol[[1]]
```

Out[ ]= $\frac{1}{2}$

In[ ]:=
```
? LinearSolve
```

Out[ ]=

Symbol

LinearSolve[*m*, *b*] finds an *x* that solves the matrix equation *m*.*x* == *b*.

LinearSolve[*m*] generates a LinearSolveFunction[…] that can be applied repeatedly to different *b*.

In[ ]:=
```
m = {{1, 2}, {4, 5}}; b = {2, 5};
X = {x, y};
sol = LinearSolve[m, b]
```

Out[ ]= {0, 1}

In[ ]:=
```
x = sol[[1]]
```

Out[ ]= 0

In[ ]:=
```
y = sol[[2]]
```

Out[ ]= 1

In[]:=
```
eq = {2 u + 3 v + w == 6, u + v + w == 1, 6 u + 4 w + v == 9};
vari = {u, v, w};
Solve[eq, vari]
```

Out[]= $\left\{\left\{u \to \frac{25}{7},\ v \to \frac{5}{7},\ w \to -\frac{23}{7}\right\}\right\}$