Solve the equation:

$a := \left(\text{Solve}\left(x^2 - 9,\ x\right)\right) = \text{Solve}\left(-9 + x^2,\ x\right)$ $\qquad a = \begin{cases} x = -3 \\ x = 3 \end{cases}$

I wanted to convert the system in an array to use in the for-loop, like the following:

$\text{sys2mat}_1(a) = \begin{bmatrix} x = -3 \\ x = 3 \end{bmatrix}$

But when I am trying to assign to a variable, it does not work:

$aa := \text{sys2mat}_1(a) = \text{Solve}\left(-9 + x^2,\ x\right)$ $\qquad aa = \begin{cases} x = -3 \\ x = 3 \end{cases}$

1) Method to convert all the solutions

```
u := 0
for sol ∈ sys2mat1(a)
    u := u + 1
    Clear(x)
    all_solutions_u := Assign(sol)
```

$all\_solutions = \begin{bmatrix} -3 \\ 3 \end{bmatrix}$ OK

2) Method to filter the solutions the meet the criteria

filter the positive solution

```
for sol ∈ sys2mat1(a)
    u := u + 1
    Clear(x)
    s_pos := Assign(sol)
    if s_pos > 0
        break
    else
        "none"
```

$s_{pos} = 3$ OK

$x = x$ shouldn't x be defined since the break happens after the assignmet?

Filter the negative solution

```
for sol ∈ sys2mat1(a)
    u := u + 1
    Clear(x)
    s_neg := Assign(sol)
    if s_neg < 0
        break
    else
        "none"
```

$s_{neg} = -3$ OK

$x = x$ shouldn't x be defined since the break happens after the assignmet?

3) Method to filter the solutions the meet the criteria without clearing *x* (not working properly)

filter the positive solution

```
for sol ∈ sys2mat1(a)
    u := u + 1
    s_pos := Assign(sol)
    if s_pos > 0
        break
    else
        "none"
```

$s_{pos} = 0$

Since x was not cleared I think the Assign function at th
second iteration tried to evaluate a boolean where both h
side where definene, resulting in false (0)

$\mathrm{Assign}(3 = -3) = 0$

$x = -3$ x is not cleared

lastError = ""

Filter the negative solution

```
for sol ∈ sys2mat1(a)
    u := u + 1
    s_neg := Assign(sol)
    if s_neg < 0
        break
    else
        "none"
```

$s_{neg} =$ "solve: all variables must not be numbers.
-- an error. To debug this try: debugmode(tru
(%i39)"

$x = -3$

lastError = "Questa azione non può venire eseguita con testo."

translation: "this action cannot be performed with text"

4) Trying to be clever

$\mathrm{Clear}(x) = 1$

$\mathrm{Solve}\left(\begin{cases} x^2 - 1, x \\ x > 0 \end{cases}\right) =$ "no result"