

### Method of Solving Any Equation

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We use the program QBASIC to solve the equations.

Equation a:

$$x^3 - 9x^2 + 26x - 24 = 0$$

```
x = 1
FOR N=1 TO 10000 STEP 1
x = (9x^2 - 26x + 24)/x^2           ⇔   x = 4
PRINT x
NEXT N
```

```
x = 1
FOR N=1 TO 10000 STEP 1
x = 24/(x^2 - 9x + 26)           ⇔   x = 2
PRINT x
NEXT N
```

$$x^2(x-9) + 26x - 24 = 0$$

$$x = (24 - 26x)/(x-9)/x \quad \Leftrightarrow \quad x = 3$$

Some equations converge to the solutions. The initial x is any value, but some values don't converge.

Equation b:

$$\text{Log}(x) + x = 10$$

```
x = 2
FOR N=1 TO 10000 STEP 1
x = 10 - LOG(x)                   ⇔   x = 7.92942
PRINT x
```

NEXT N

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Equation c:

$$\text{Sin}(x) + \text{Log}(x) + x = 4$$

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```
x = 2
FOR N=1 TO 10000 STEP 1
  x = 4 - SIN(x) - LOG(x)
  PRINT x
NEXT N
```

$\Leftrightarrow x = 2.475725$

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The method also works for systems:

$$\begin{cases} yx^3 - 2y^2x + 4 = 0 \\ y^3x - 3y^2x^2 + 5 = 0 \end{cases}$$

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```
x = 2
y = 3
FOR N=1 TO 10000 STEP 1
  y = (2y^2x - 4) / x^3
  x = (y^3x + 5) / 3 / y^2 / x
  PRINT x, y
NEXT N
```

$\Leftrightarrow y = 17.97625$   
 $\Leftrightarrow x = 5.992943$

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This method must be studied in more detail  
Please advise if you have any other solutions.