

Gauss-Seidel and Relaxation Techniques

\*\*\*\*\*Matrix\*\*\*\*\*

---

	-8
	5
	2

---

	0
	0
	0

---

	0
	0
	0

---

\*\*\*\*\* Press Alt-H for Information \*\*\*\*\*

This is a simple template to demonstrate the ability of AS-EASY-AS to perform iterative operations, while also showing an application of the Gauss-Seidel method of solving a set of equations using the Over/Under Relaxation method. The theory behind this method can be found in any good textbook on numerical methods.

- A1..C3 Contain the coefficients for a set of three equations
- D1..D3 Contain the constants
- E1..E3 Contain the solutions for X,Y, and Z using the matrix Solution available in AS-EASY-AS.
- C9..C11 Contain the solutions using the Gauss-Seidel method
- C15..C17 Contain the solution using the Over/Under technique

\* Remember, the initial guess and the relaxation factor determine how quickly the answers will converge!

Sheet1

		Const.	Soln.
1	2	0	1
7	-3	10	2
1	-2	-2	3
0			
#NAME?	#NAME? <-- X1		Seidel
#NAME?	#NAME? <-- X2		Seidel
#NAME?	#NAME? <-- X3		Seidel
0			
0			
#NAME?	#NAME? <-- X1		Over/Und
#NAME?	#NAME? <-- X2		Over/Und
#NAME?	#NAME? <-- X3		Over/Und

\*\* Press Home to Return to the Data Area \*\*

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AS-EASY-AS User

After you Enter  
the Matrix and  
the constants,  
press Alt-A  
to perform  
the calculations.

This is only meant  
as a demo of the  
program's abilities.  
Validation of results  
is specific user's  
responsibility!

Sheet1

```
/sgpd{let iit1,0}{let init2,0}{let relax,0}/sgpe{goto a4}
```

```
/sgrm/rlninit1~/rlninit2~/rlnrelax~  
/sgpd/aedata~esolve~/sgpe  
{invalue "Enter Guess For Seidel Solution: ",c8}{update}  
{invalue "Enter Guess For Over/Under Relaxation Solution: ",c13}{update}  
{invalue "Enter Guess For Relaxation Factor: ",c14}{update}  
/rlyg13~/rlyg14~{update}  
/rlyinit1~/rlyinit2~/rlyrelax~/rlydata~  
/rlng13..g18~/reg13..g18~{let g13,"Keep Pressing F9 to"}  
{let g14,"Perform the iterations"}  
{let g15,"Until Conversion!"/rlyg13..g18~  
~
```

```
{home}{pgdn}
```