

pwl20.gce

Attributes

```
mainvars: y
iparms: n=2
rparms:
+   t1 =1   t2 =2   t3 =3   t4 =4   t5 =5
+   t6 =6   t7 =7   t8 =8   t9 =9   t10=10
+   t11=11  t12=12  t13=13  t14=14  t15=15
+   t16=16  t17=17  t18=18  t19=19  t20=20
+   v1 =1   v2 =2   v3 =3   v4 =4   v5 =5
+   v6 =6   v7 =7   v8 =8   v9 =9   v10=10
+   v11=11  v12=12  v13=13  v14=14  v15=15
+   v16=16  v17=17  v18=18  v19=19  v20=20
```

Description

`pwl20.gce` is used to generate a piecewise linear waveform with up to 20 “break points”. The general variable `y` serves as the output. The parameters have the following meaning:

n: Number of break points.

t1,t2, etc.: Time of break point 1, 2, etc.

v1,v2, etc.: Value of `y` at the corresponding break point. For example, `v2=3.5` means that the value of `y` at the 2nd break point is 3.5. `y` is made constant (equal to `v1`) before `t1`. Also, `y` is made constant after the `nth` break point.

AC behaviour is not implemented.

The effect of the various parameters of `pwl20.gce` on the waveforms is shown in Fig. 1. The corresponding circuit file (available as `pwl20_gce.in` in the examples directory) is reproduced below.

```

title: testing of pwl20

begin_circuit
    gelement type=pwl20
+     t1=1  t2=2  t3=4  t4=4.5  t5=7  t6=8
+     v1=0  v2=10 v3=10 v4=-10  v5=-10 v6=0
+     n=6 y=y
    outvar: y=var_of_y
end_circuit

begin_solve
    solve_type=startup
    initial_sol initialize
    method: t_startup=0
end_solve

begin_solve
    solve_type=trns
    initial_sol previous
    begin_output
        filename=pwl20_gce.dat
        variables: y
    end_output
    method: t_start=0 t_end=10.00
+     back_euler=yes deltat_const=0.5
end_solve

end_cf

```

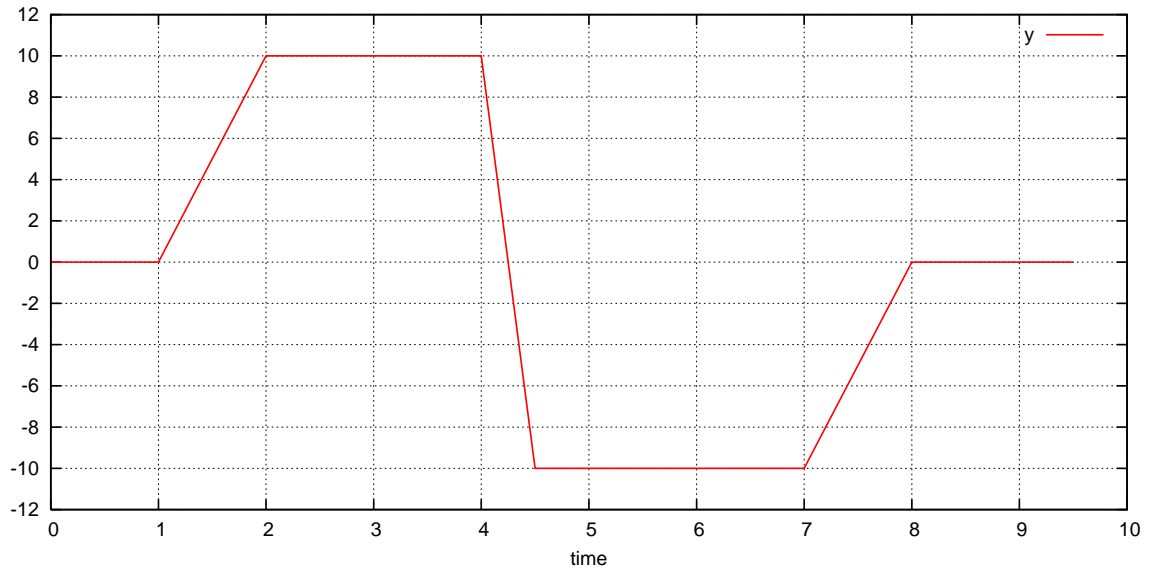


Figure 1: Waveforms obtained with `pwl20.gce` with $n=6$, $t_1=1$, $t_2=2$, $t_3=4$, $t_4=4.5$, $t_5=7$, $t_6=8$, $v_1=0$, $v_2=10$, $v_3=10$, $v_4=-10$, $v_5=-10$, $v_6=0$.