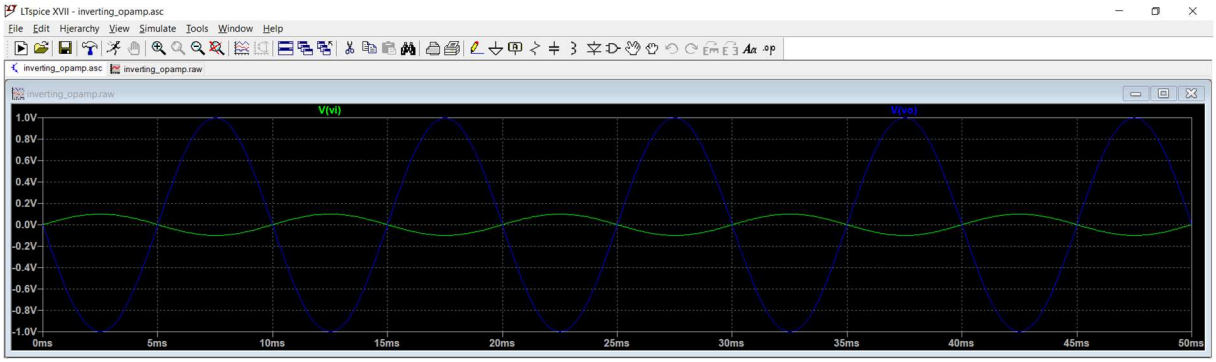
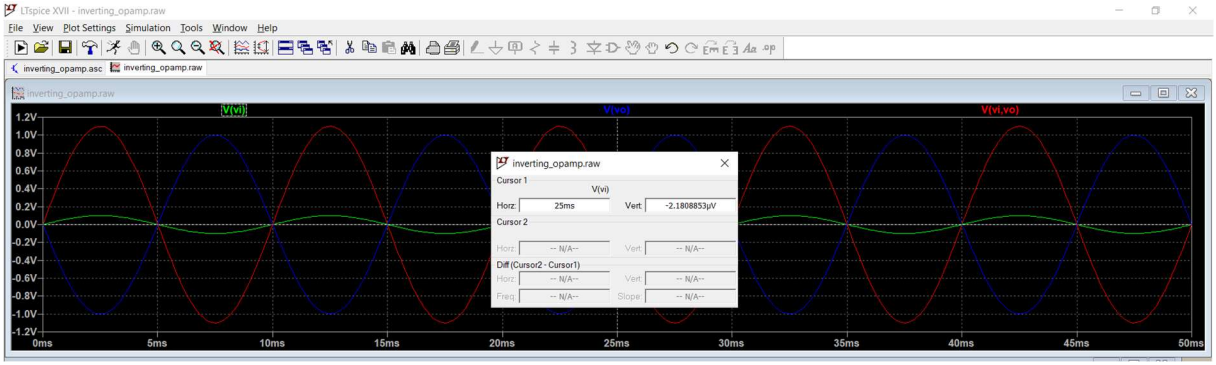
Laboratorul 5

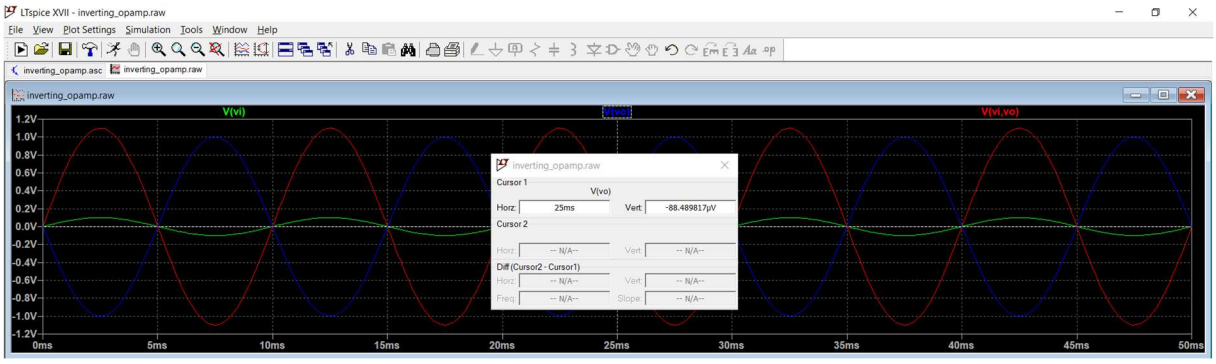
Margaritescu Vlad - 322 AB

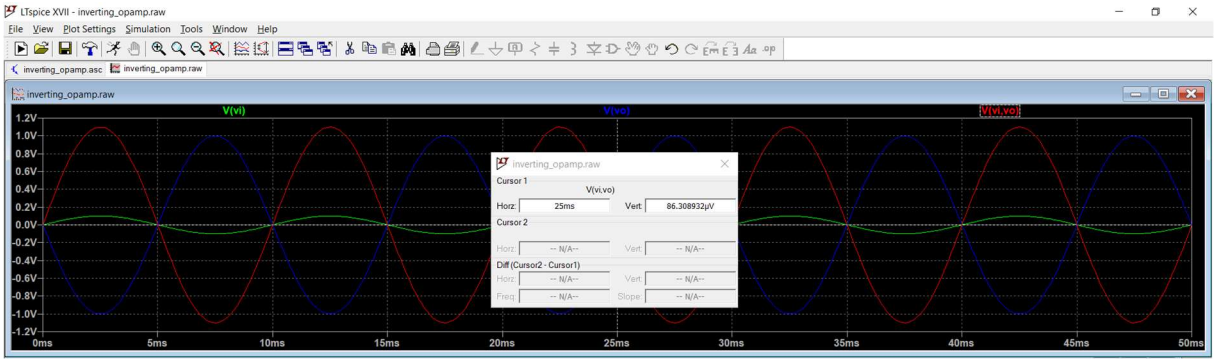
3.1 Amplificatorul inversor realizat cu amplificator operational

1.







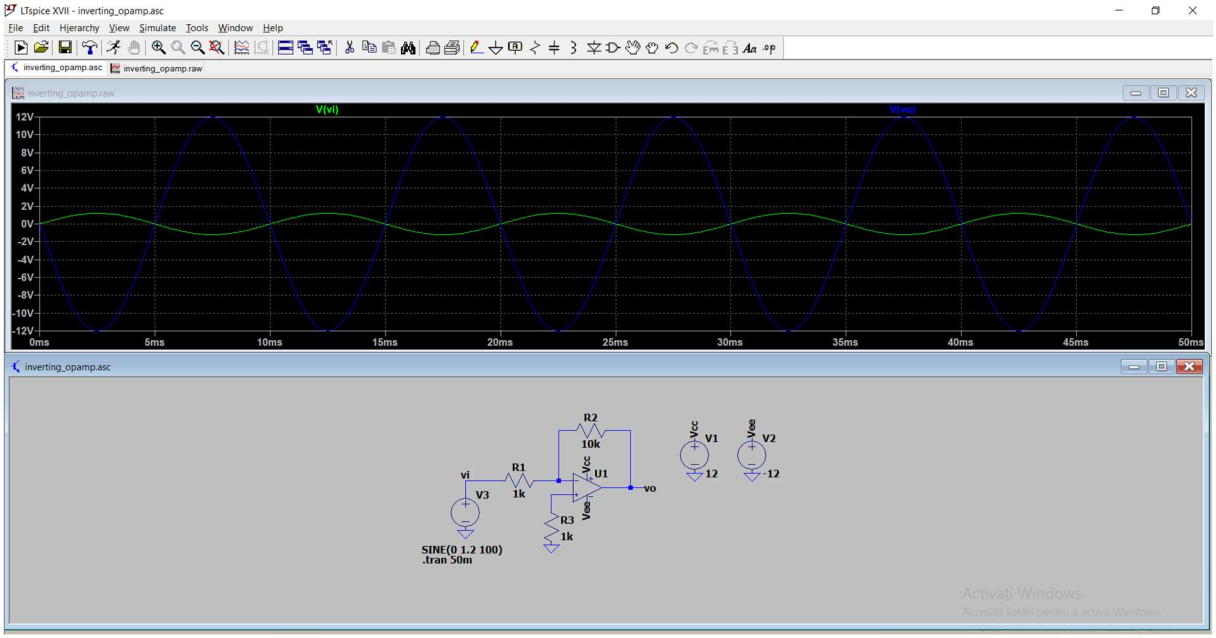


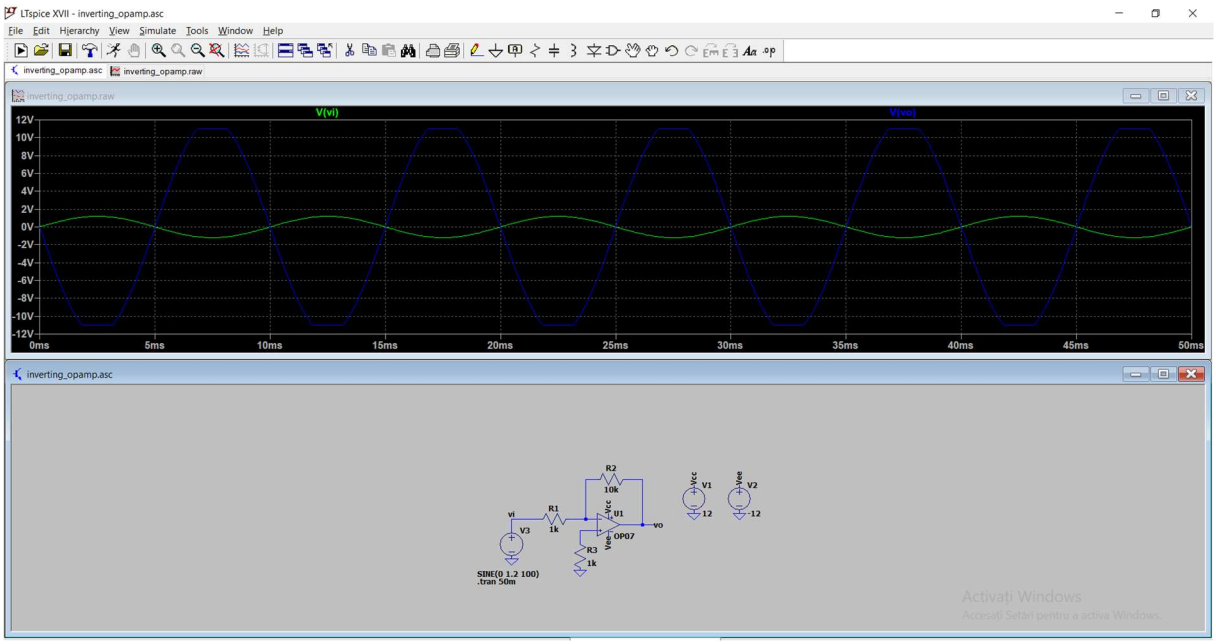
Vi = -2.18088853 µV

V0 = - 88.489817 µV

A = V0/Vi = - 88.489817 / -2.18088853 = 40.575

2.

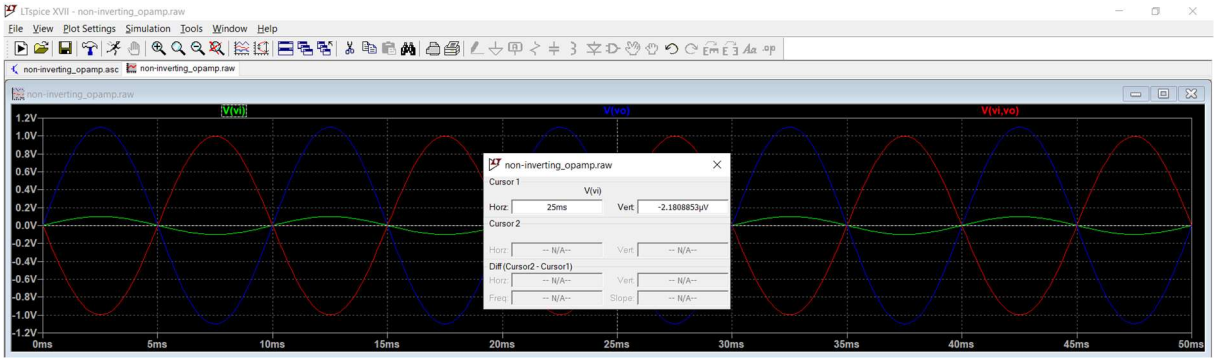


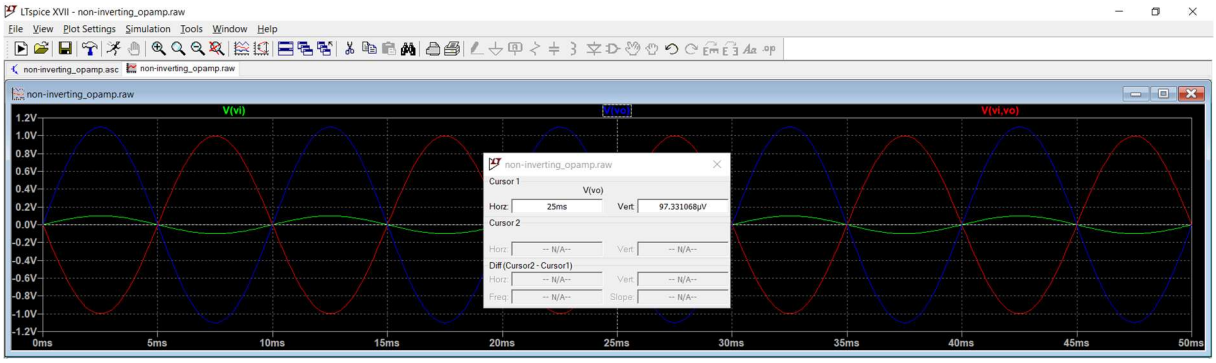


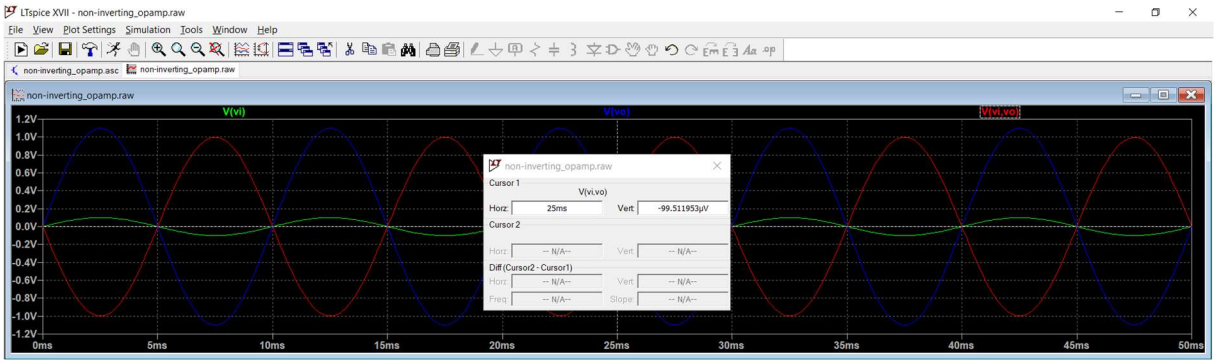
Atunci cand conectam amplificatorul operational OP07, iesirea nu mai este perfect sinusoidala si nu ajunge la capetele de 12 V, respectiv -12V.

3.2 Amplificatorul neinversor realizat cu amplificator operational

1.





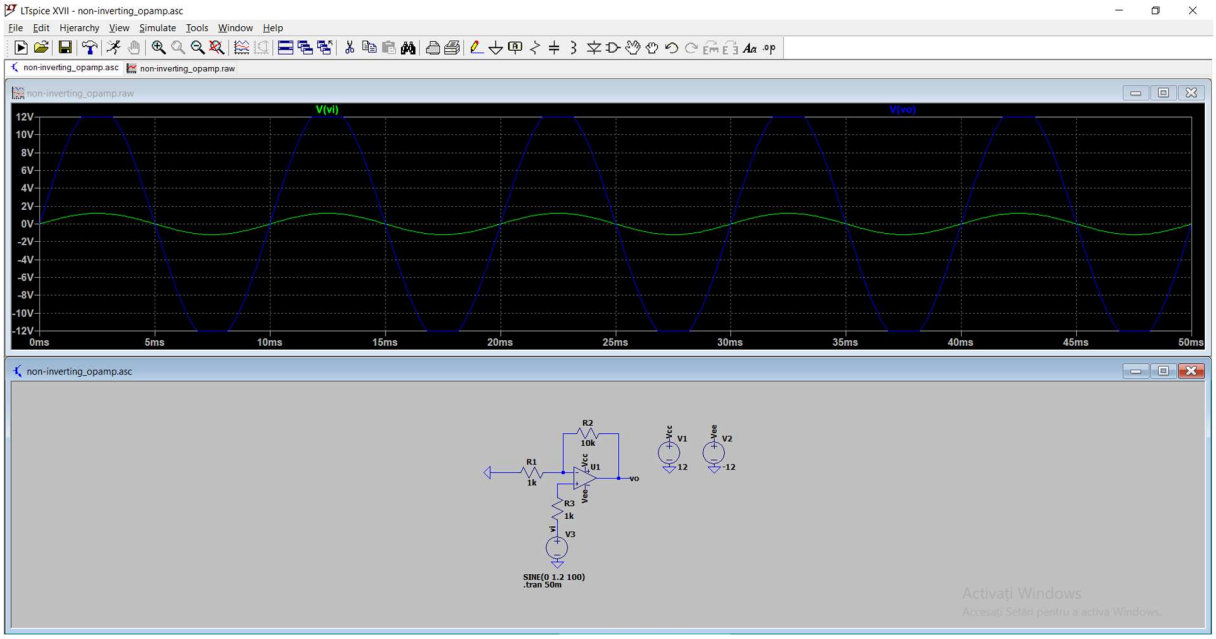


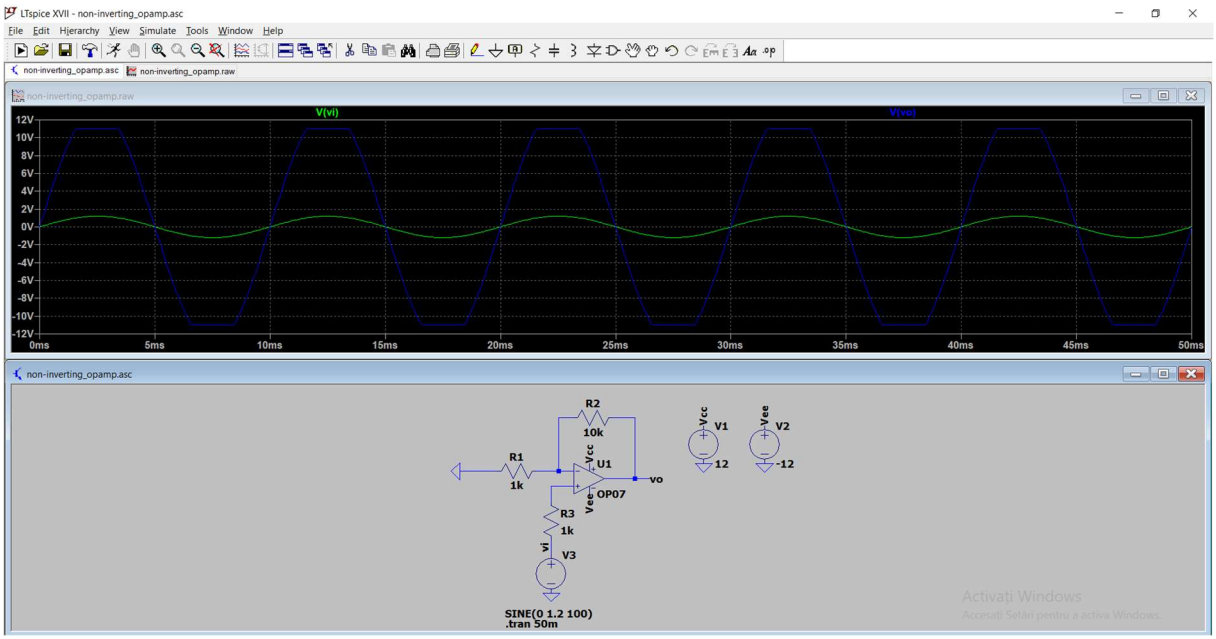
Vi = -2.18088853 µV

V0 = 97.331068 µV

A = V0/Vi = 97.331068 / -2.18088853 = -44.629

2.

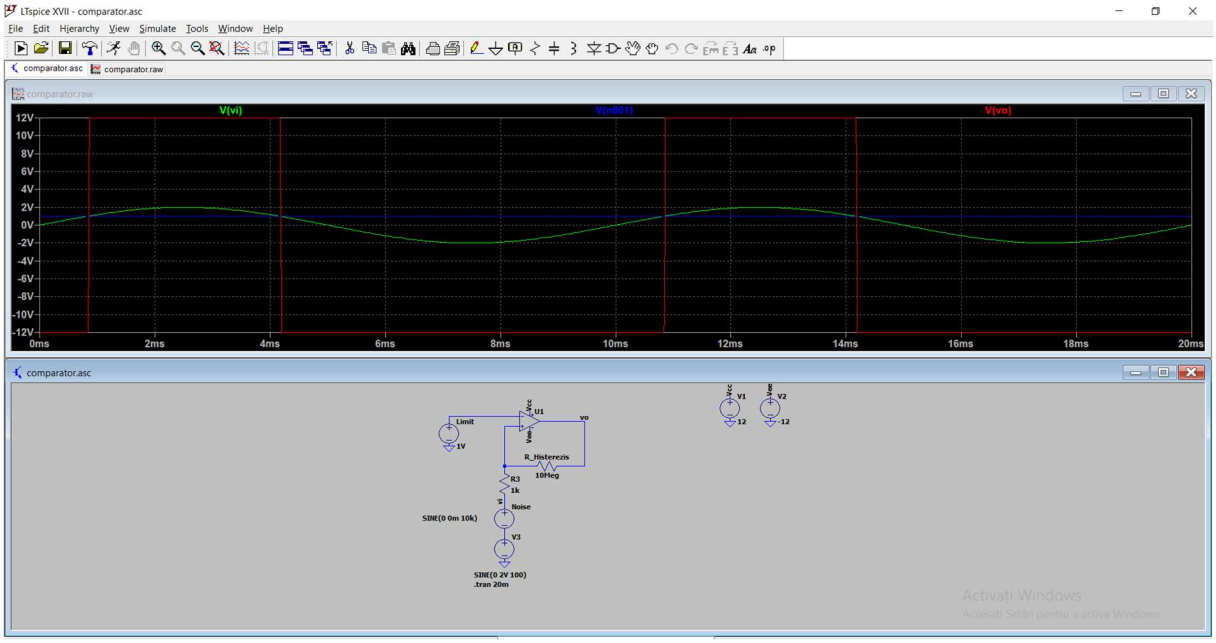




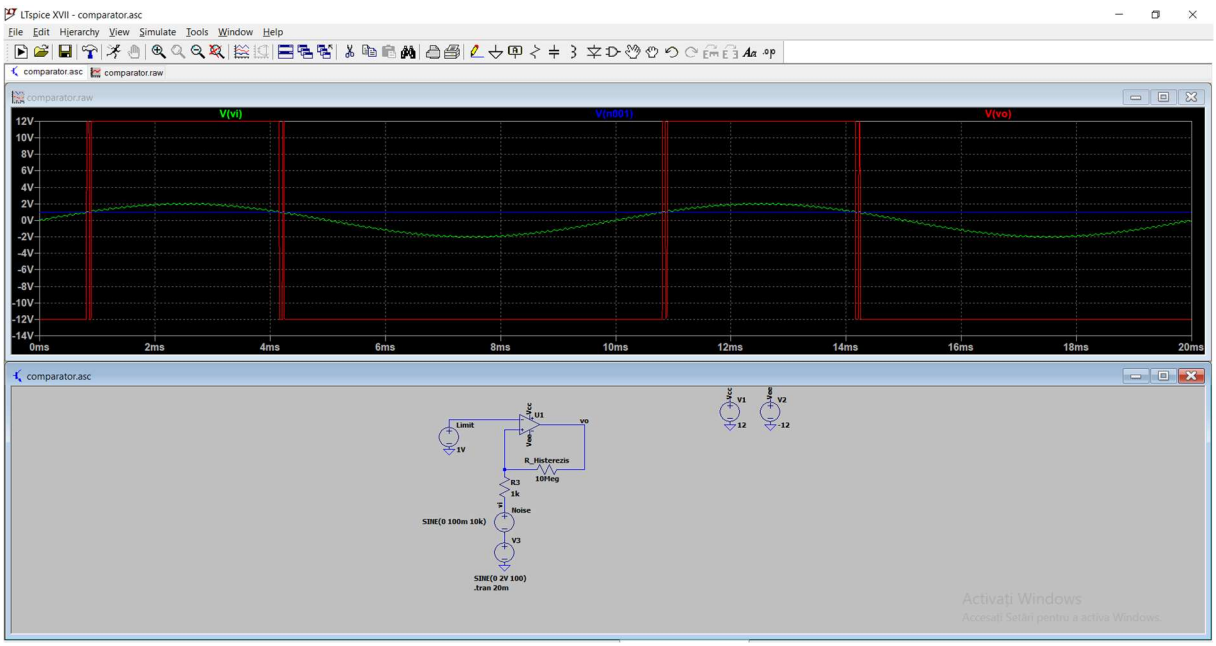
Si in cazul montajului inversor, la amplificatorul operational OP07, se poate vedea cum iesirea nu mai este perfect sinusoidala si nu ajunge la capetele de 12 V, respectiv -12V.

3.3 Comparatorul realizat cu amplificator operational

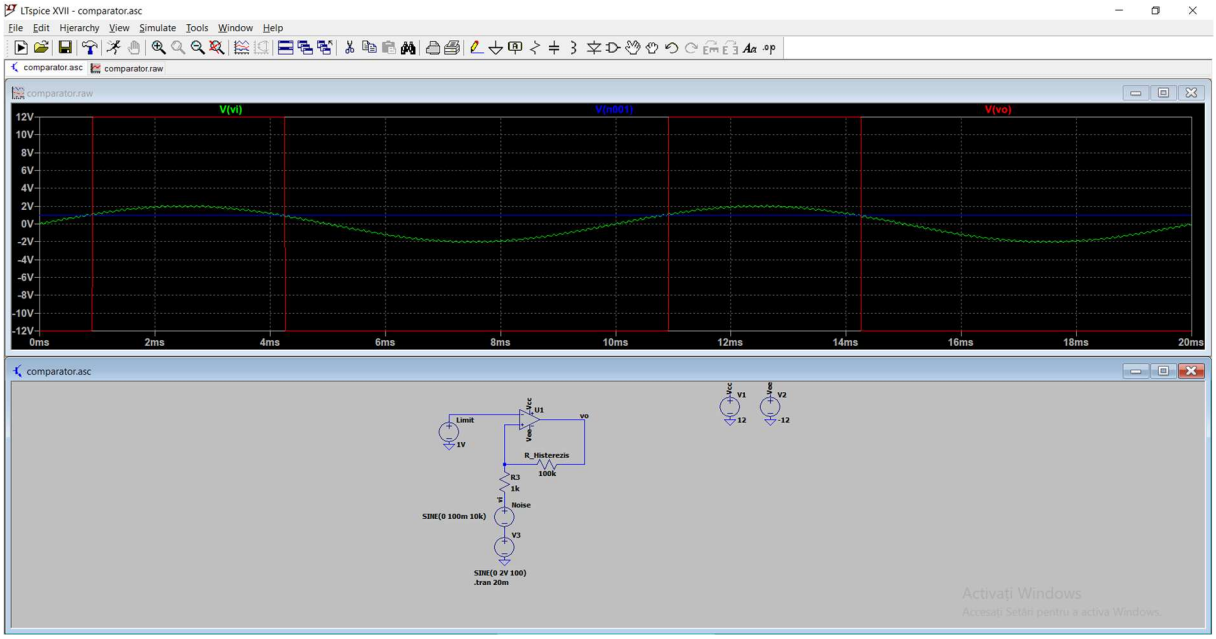
1.



2.

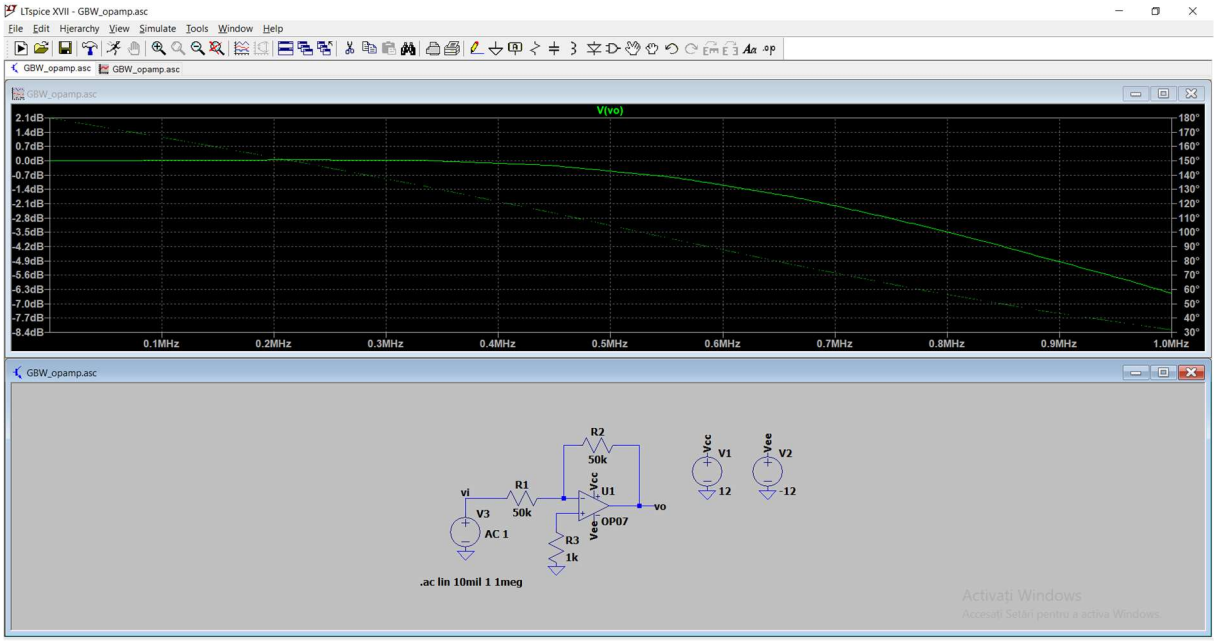


3.

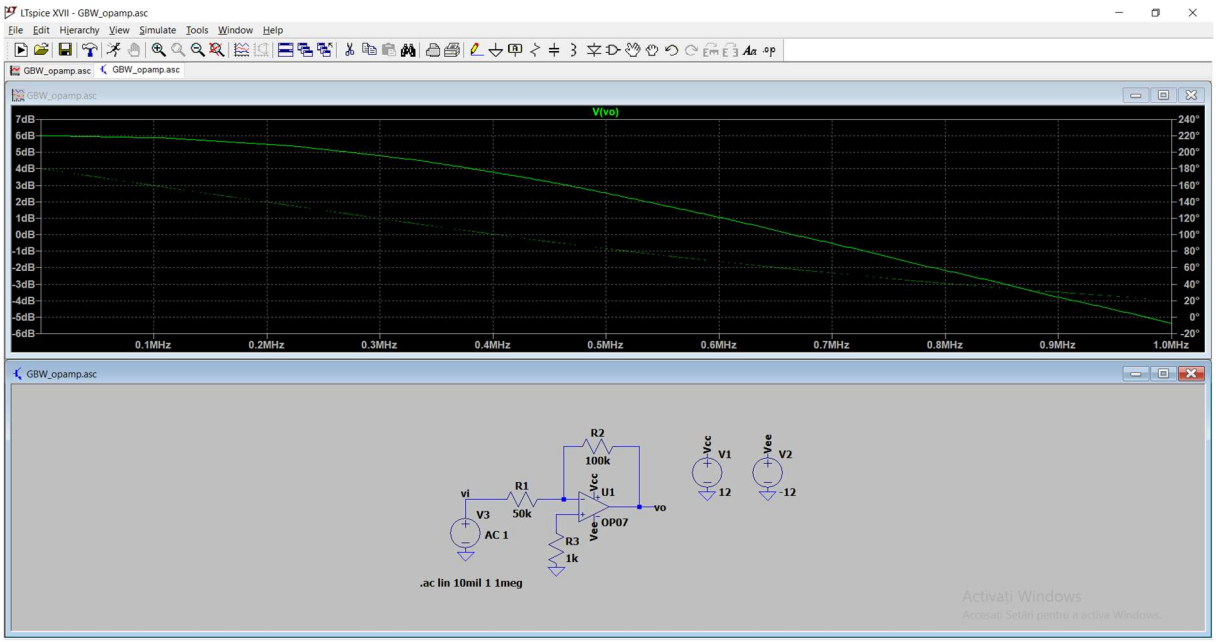

LTspice XVII - comparator.asc
File Edit Hierarchy View Simulate Tools Window Help
comparator.asc comparator.raw
comparator.raw
V(vi)
V(n001)
V(vo)
12V
10V
8V
6V
4V
2V
0V
-2V
-4V
-6V
-8V
-10V
-12V
0ms
2ms
4ms
6ms
8ms
10ms
12ms
14ms
16ms
18ms
20ms
comparator.asc
Limit
1V
U1
Vcc
Vee
vo
R_Histerezis
100k
R3
1k
Noise
SINE(0 100m 10k)
V3
SINE(0 2V 100)
.tran 20m
V1
12
V2
12
Activați Windows
Accesați Setări pentru a activa Windows.

3.4 Studierea caracteristicii Gain Bandwidth Product(GBP/GBW) a amplificatoarelor

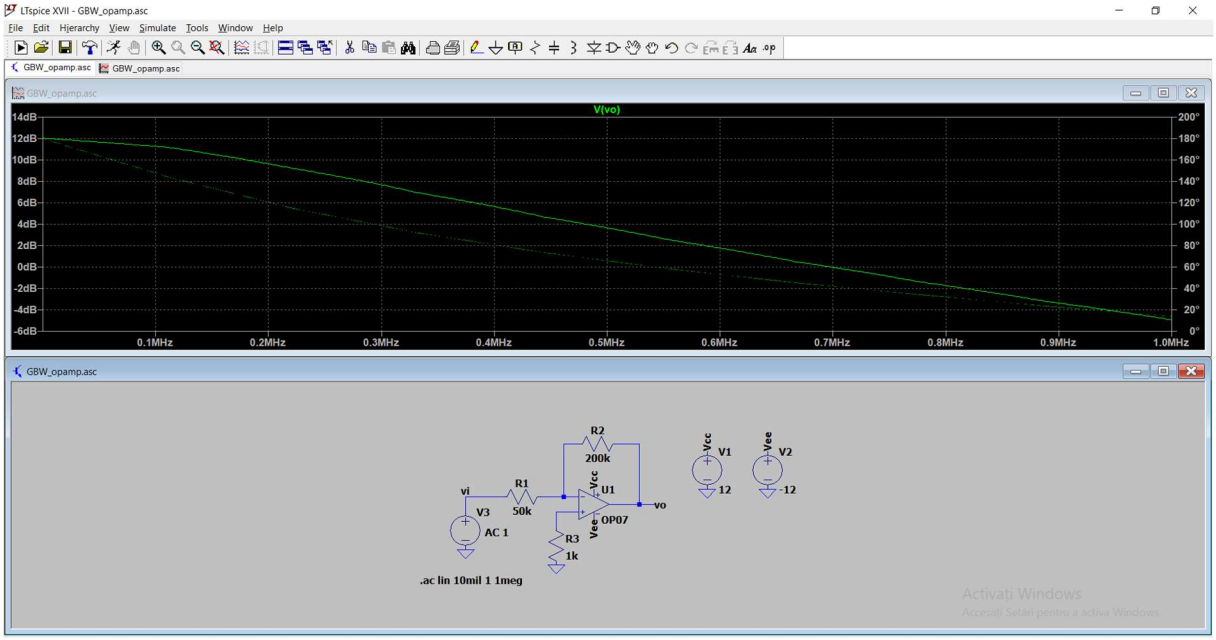
1.



2.



3.


LTspice XVII - GBW_opamp.asc
File Edit Hierarchy View Simulate Tools Window Help
GBW_opamp.asc
V(vo)
14dB
12dB
10dB
8dB
6dB
4dB
2dB
0dB
-2dB
-4dB
-6dB
200°
180°
160°
140°
120°
100°
80°
60°
40°
20°
0°
0.1MHz
0.2MHz
0.3MHz
0.4MHz
0.5MHz
0.6MHz
0.7MHz
0.8MHz
0.9MHz
1.0MHz
R2
200k
Vcc
V1
12
Vee
V2
-12
vi
R1
50k
U1
vo
V3
AC 1
OP07
R3
1k
.ac lin 10mil 1 1meg
Activati Windows