

clipper circuits (2,3,17)

(see notes - 2c)

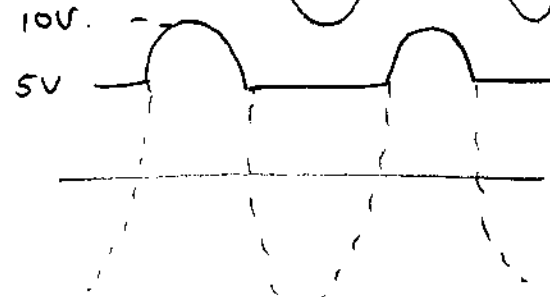
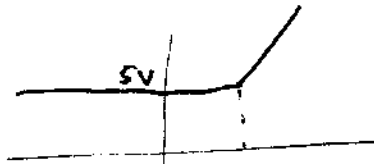
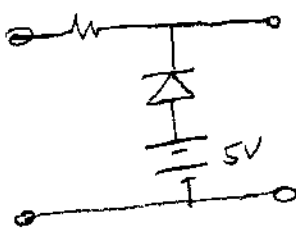
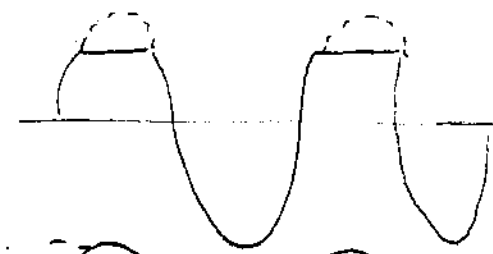
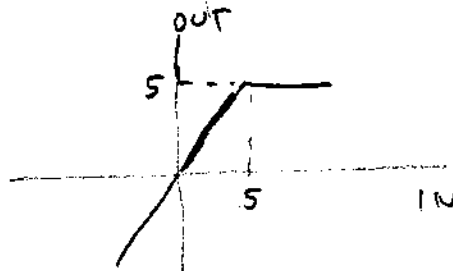
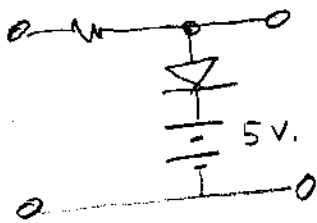
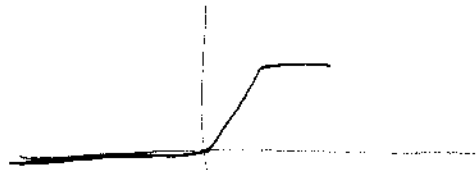
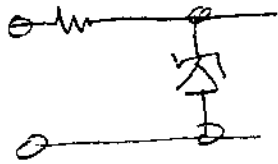
4A
1

Also known as... Limiter circuits

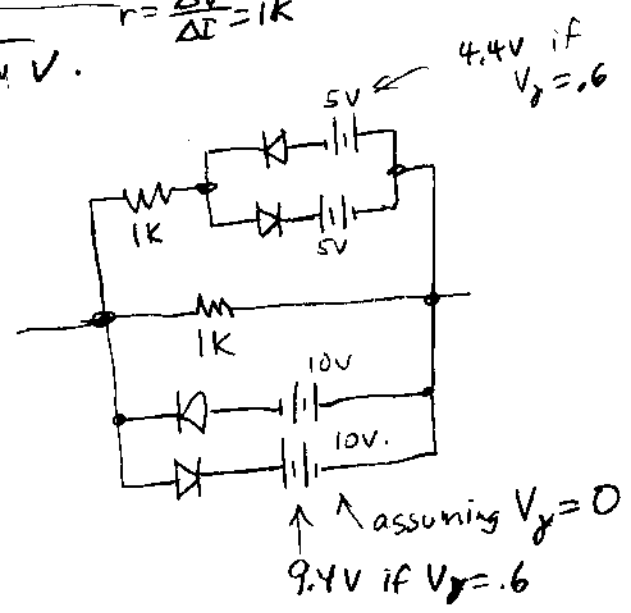
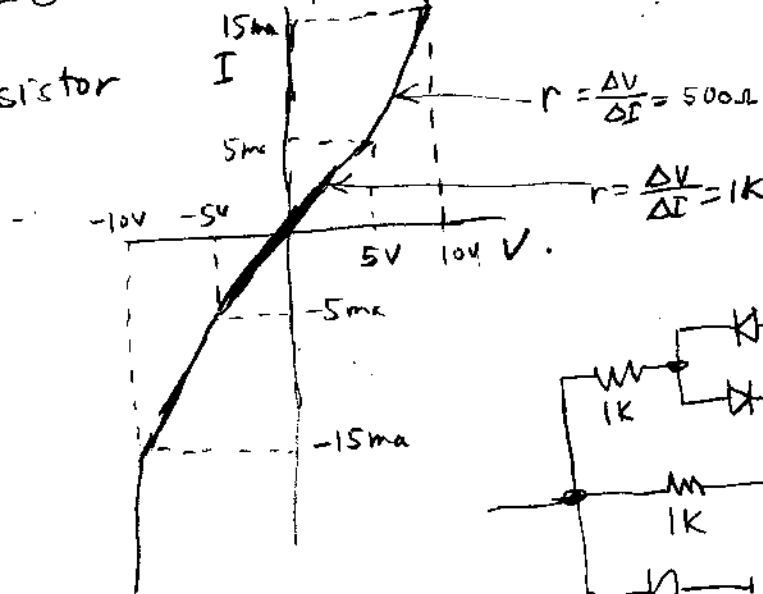
Distortion (?), protection.

Use diodes to create a nonlinear transfer function.

A zener diode can be used as a clipper



Nonlinear resistor



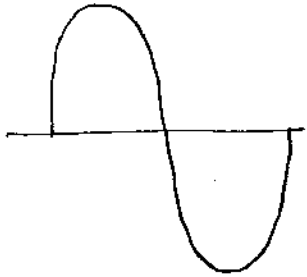
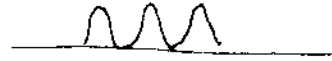
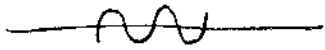
Clamper circuits (2,3,2)

Instead of chopping it off, we want to shift the DC level, so one side of the signal is at a given place.

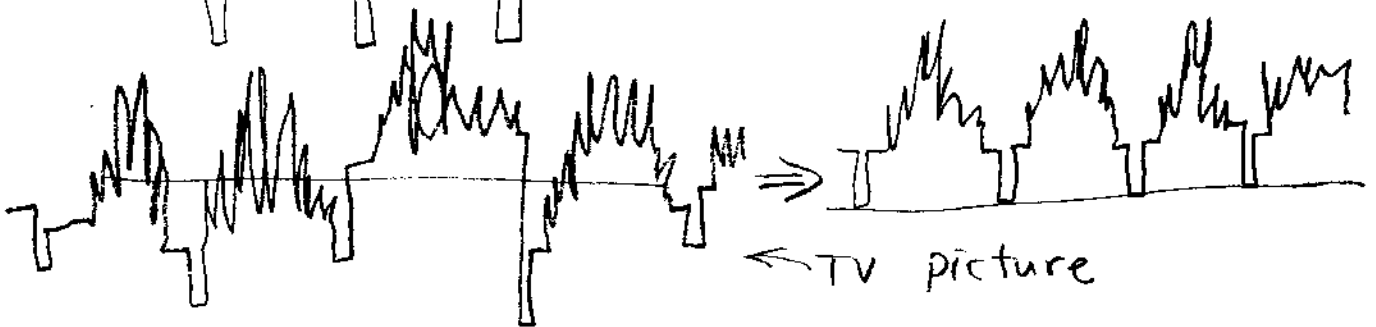
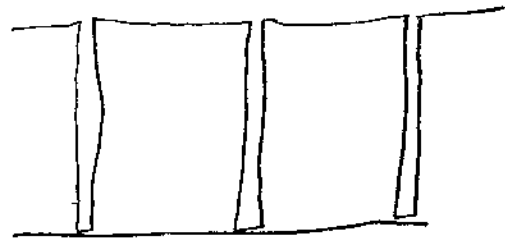
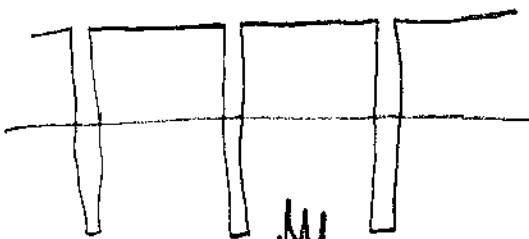
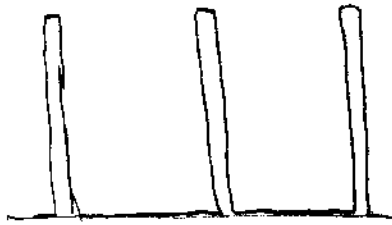
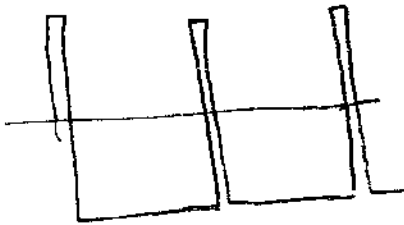
Example

IN

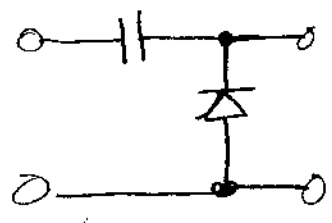
OUT



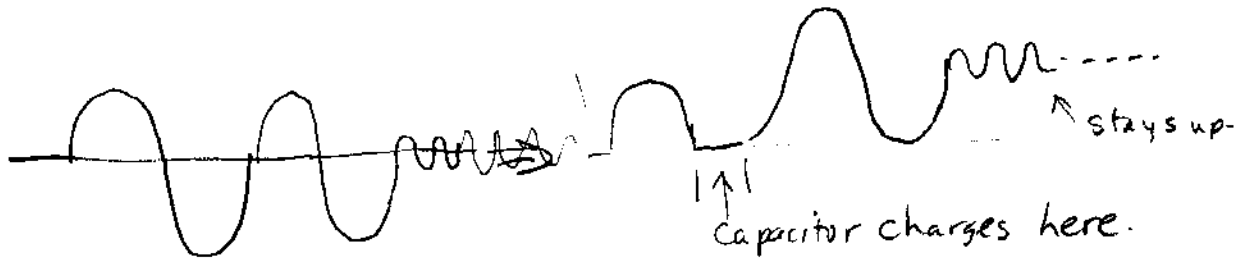
← voltage doubler.



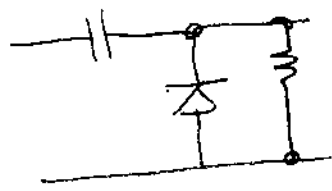
Clamp circuit:



Capacitor charges on first negative input.
Since there is no discharge, it holds it forever.



With a resistor, it will eventually discharge

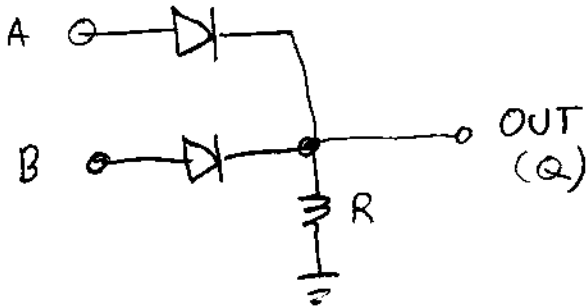


Multiple Diode Circuits - (2.4)

(read example 2.4.1)

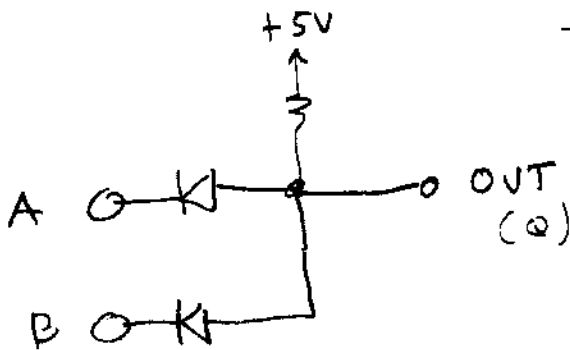
Diode logic circuits

"OR" gate - output is high if either input is high



Resistor pulls it down when both inputs are low.
OUT follows the highest input.

"AND" gate - output is high only if both inputs are high.



The resistor pulls it up.

OUT follows the lowest input.

Exercises - (not to hand in)

P	#		P.	#
67	6, 7, 8	Zener regulator	88	13, 15, 18
68	9	regulation		
72	10, 11	Clipper, nonlinear ckt.	89	21
74	12, 13	Clamp		
80	14, 15	Multiple diode	91-92	33, 35, 38
82	16, 17	diode logic	93	40, 43
83	18	photodiode.		
84	19	LED		

Wed - Questions, pre-Lab simulation.
 Fri - Lab
 Mon - Lab
 Wed - Questions, simulation.
 or intro to BJT
 Fri - **Test** - diodes.