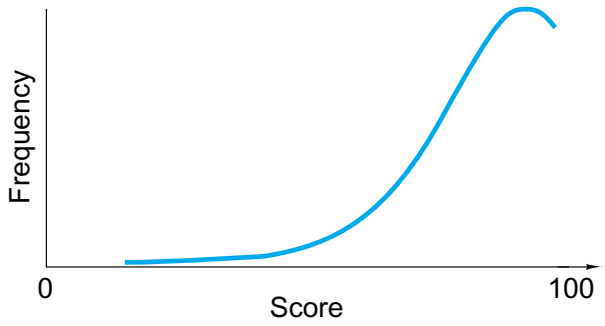
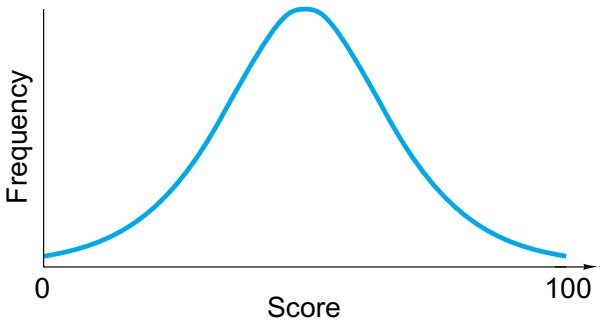
Da test:

- Covers material through section 3-4
- Closed book and closed notes
- You may have one 8.5"x11" sheet with notes HAND WRITTEN on both sides (photocopies and computer printouts are not permitted)
- The test will be designed such that you do not need a calculator and all electronic devices will be prohibited
- The test will be passed out before the start of class but you CAN NOT start until the bell and you MUST finish at the next bell or your exam will not be accepted and you will get a zero. EVERYONE should be allowed the same amount of time.
- Don't cheat, this is just bad news for everyone involved.
- The test is designed to be difficult...



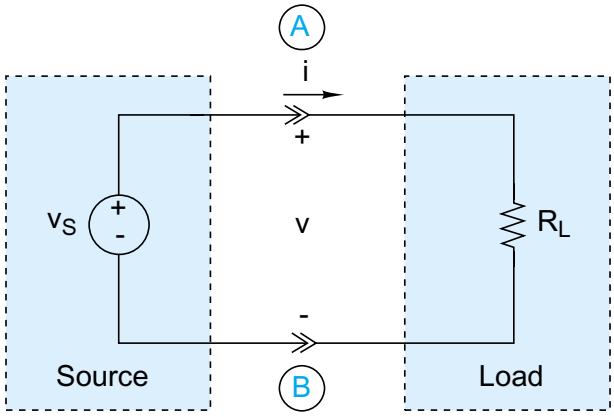
Homework set #4, due 4/23/08
3-22, 3-29, 3-38, 3-41, 3-50, 3-56, 3-59, 3-61, 3-70, 3-71

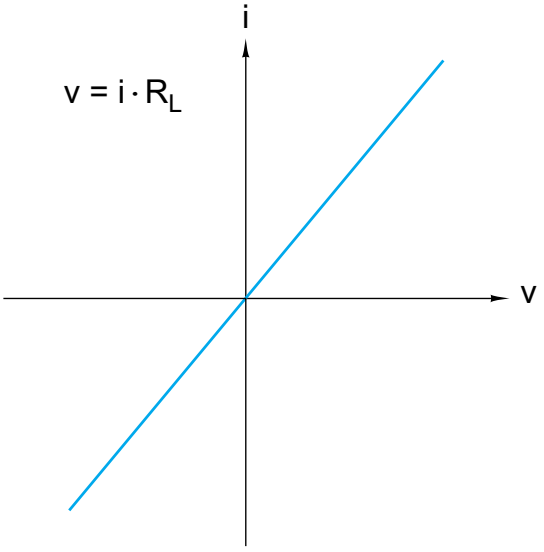
We have been juggling two concepts

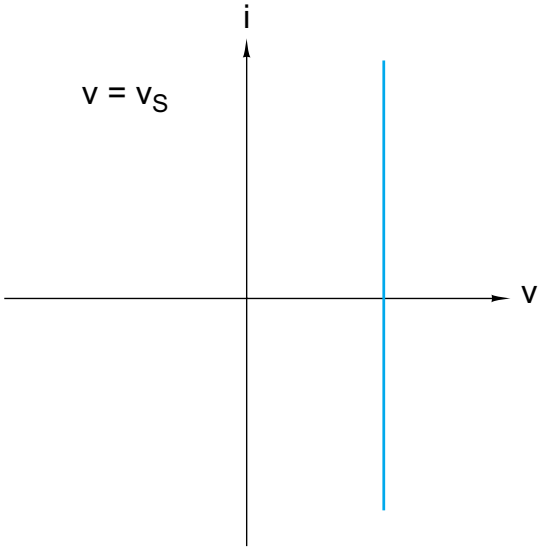
- Thevenin-Norton equivalent circuits
- Source/Load division

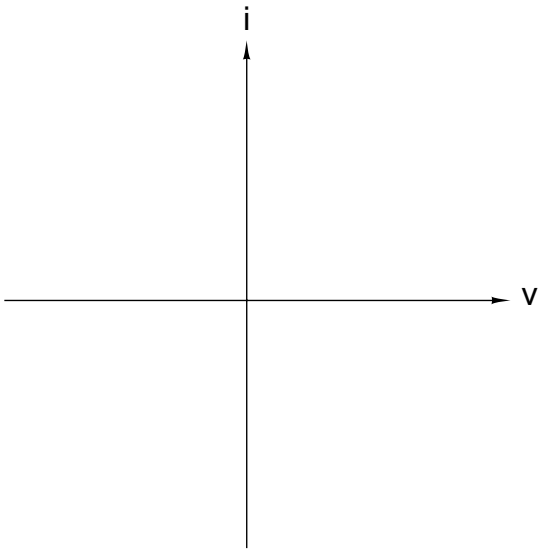
and we are about to add a third... non-linear elements.

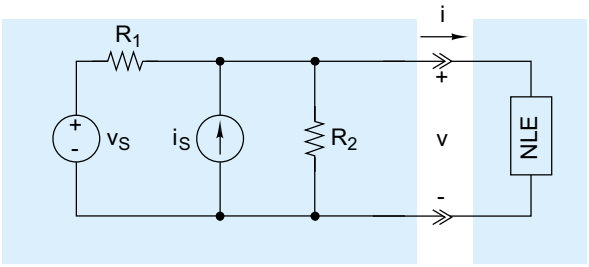
But before we do, let's look at Source/Load division alone.


A
i
+
v
-
B
$v_S$
+
-
$R_L$
Source
Load

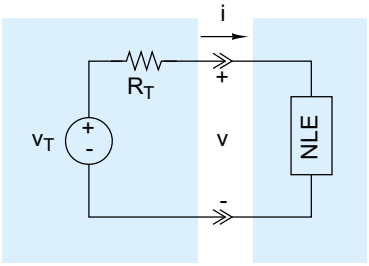

i
$v = i \cdot R_L$
v

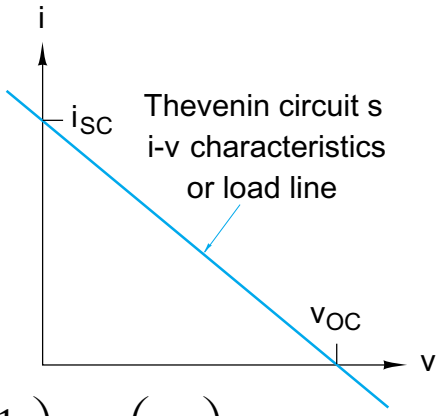

i
$v = v_S$
v

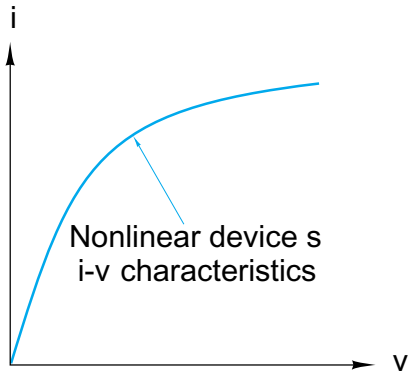

i
v



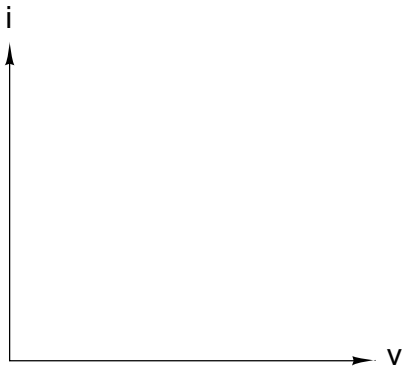

Note how we must violate passive sign convention for either the load or the source

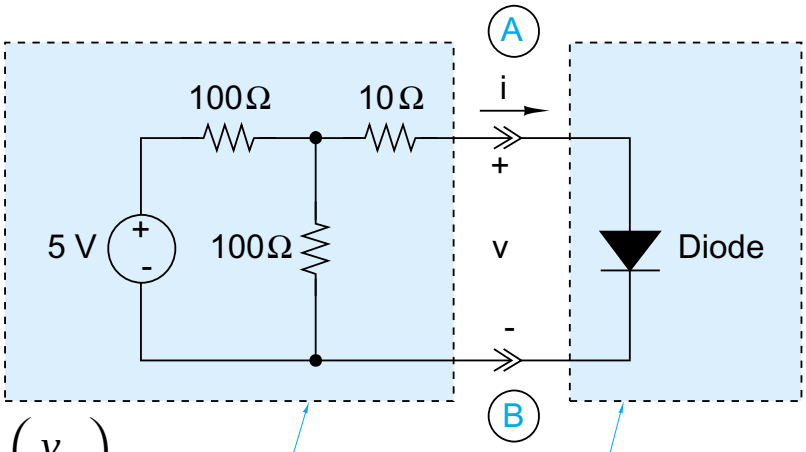


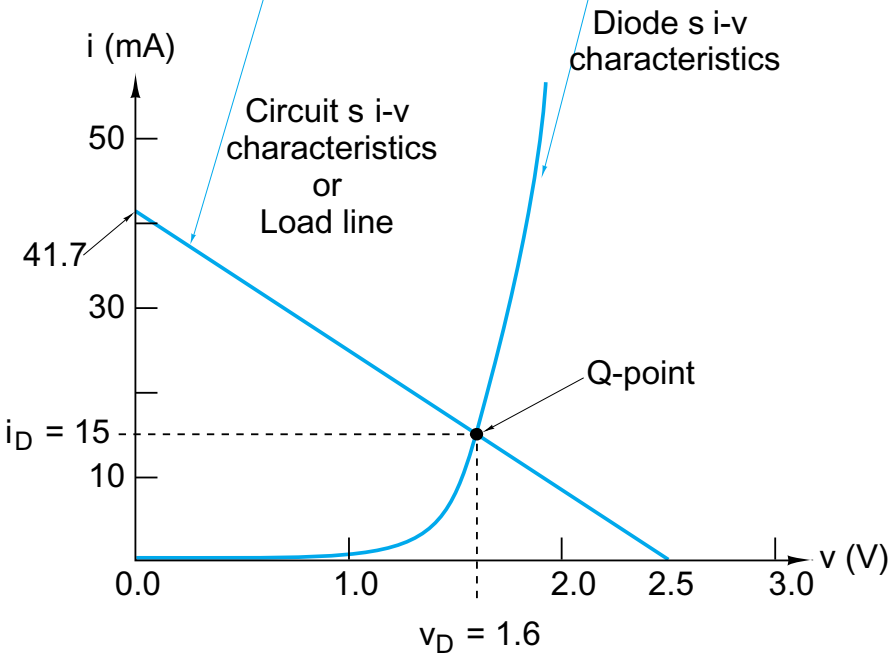

$$i = \left(-\frac{1}{R_T}\right) \cdot v + \left(\frac{v_T}{R_T}\right)$$

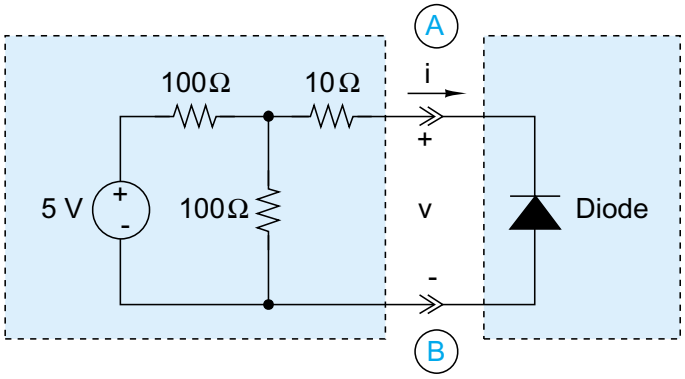


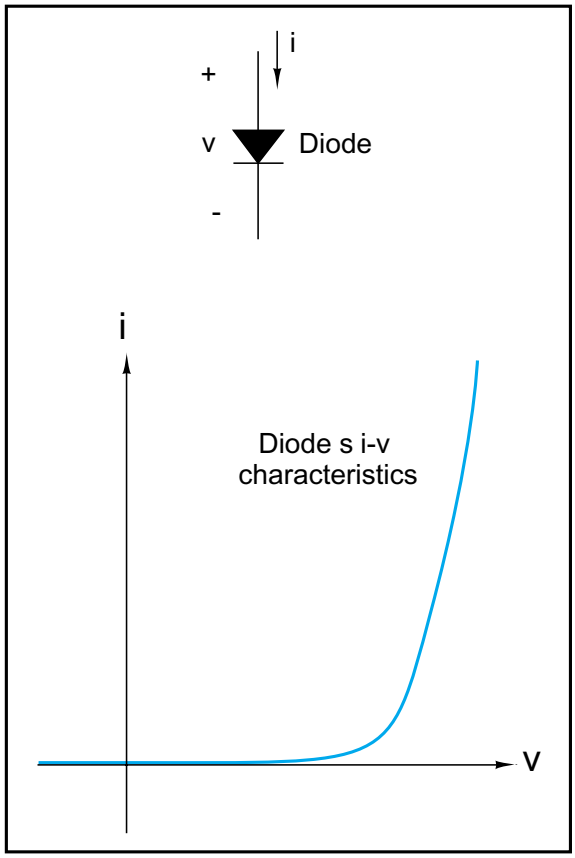



$$i = \left(-\frac{1}{R_T}\right)\cdot v + \left(\frac{v_T}{R_T}\right)$$

$$= \left(-\frac{1}{60}\right)\cdot v + \left(\frac{2.5}{60}\right)$$






Now what happens when we flip the diode around?