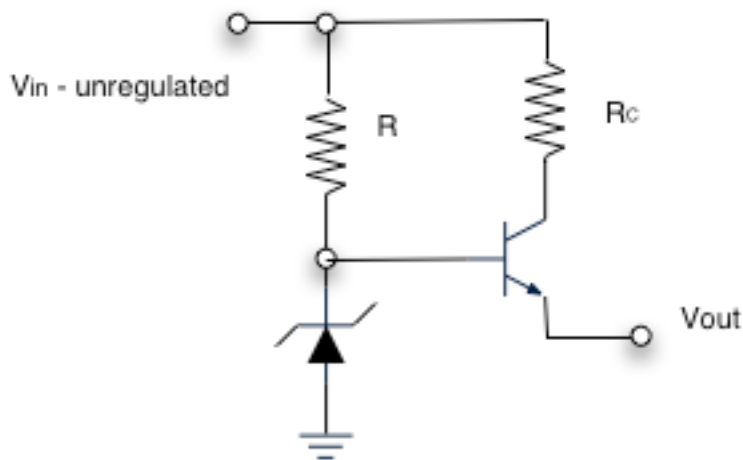


Problem HH 2.4

In problem HH 2.3 you designed a simple regulated power supply using a zener. It has some practical problems:

- V_{out} is not adjustable
- zener diodes give only a moderate ripple rejection and regulation against changes of input load and
- for widely varying load currents a high power zener is necessary.
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By using an emitter follower to isolate the zener you get the improved circuit below.



The resistor R_C protects the transistor by limiting maximum output current.

Design a +10 volt supply with the same specifications as in Problem HH 2.3. Use a zener and emitter follower. Calculate worst-case dissipation in transistor and zener. What is the percentage change in zener current from the no-load condition to full load? Compare with your previous circuit.