i_C ↓

+ v_{CE} −

+ v_{BE} −

Voltage gain will be $\frac{dv_{ce}}{dv_{BE}}$ ⇒

→

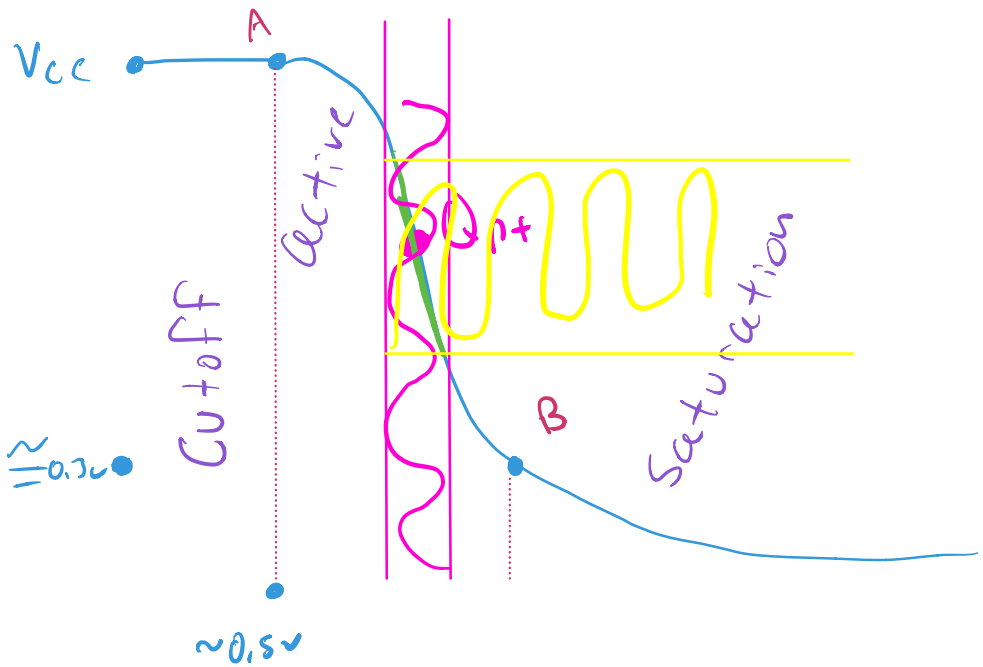
↙

→

↓

→ non linear

Will need to linearize the BJT amplifier at a DC Q-point

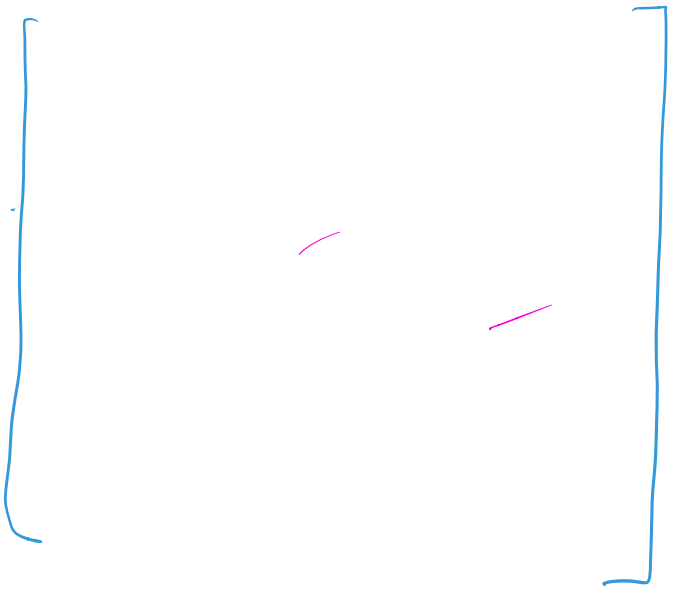


$$A_v = \left.\frac{dV_{CE}}{dV_{BE}}\right|_{V_{BE}=V_{BE_{Qpt}}}$$

} 180° phase shift

$A_v \sim R_c, I_{CQ}$

DC Analysis

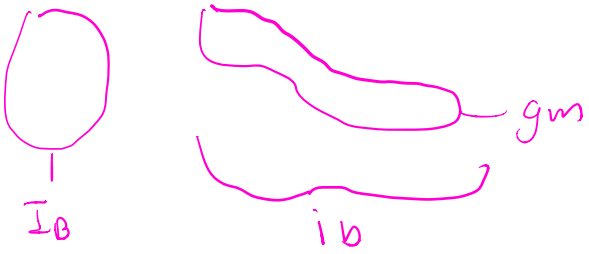


-> only swing on .3, less than.


Collector
current

= transconductance

↙ Q point related



Small signal input resistance

$i_c = I_c \, e^{\frac{V_{be}}{V_T}}$

I_E ↑ i_e ↑

r_e = Resistance between base and emitter looking into the emitter.

Hybrid pi

Early effect

Qpoint