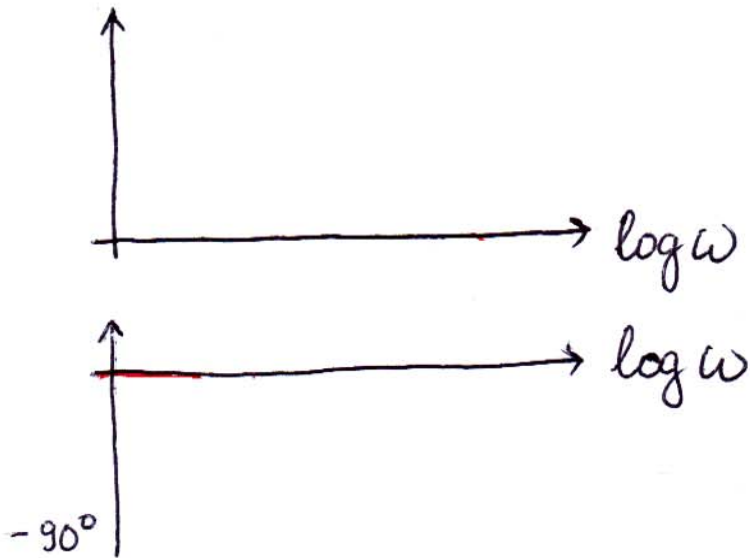
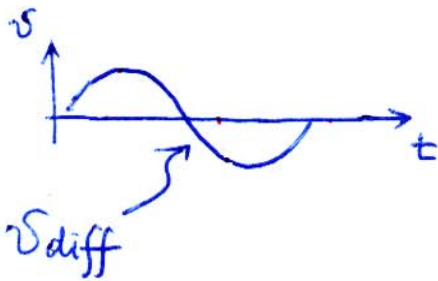


Lecture 5

Op-amp characteristics

Gain



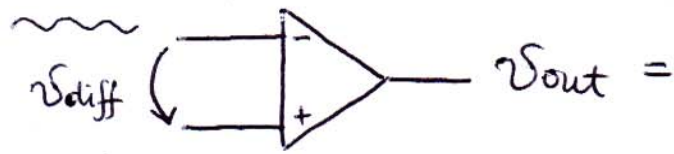
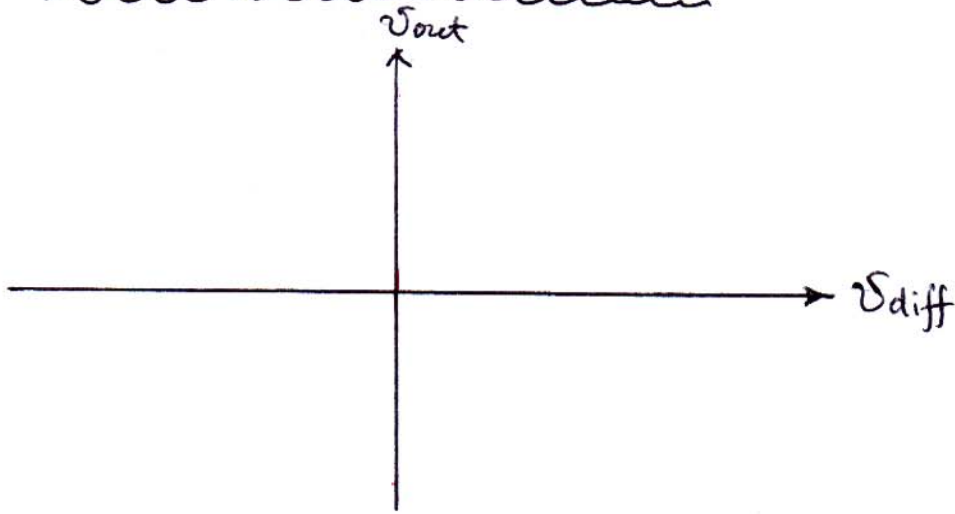
Typically

$$G =$$

Unity gain bandwidth

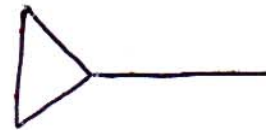
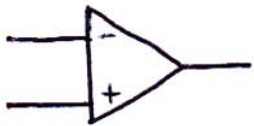
Transfer characteristic

(2)



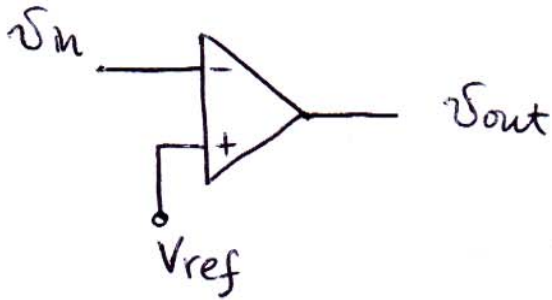
- bare op-amp is a _____ amplifier

Input offset voltage



Stew rate & propagation delay

3



Ideal op-amp

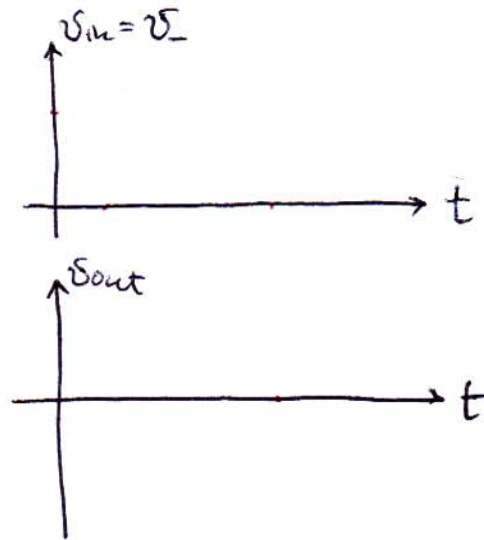
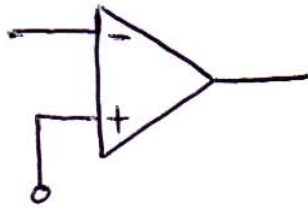
- 1) input draw _____
- 2) output resistance
- 3) $V_{sat+} =$
 $V_{sat-} =$
- 4) $G \sim \infty$
- 5) $V_{os} \rightarrow 0$, $S.R. \rightarrow \infty$, $T_{p.d.} \rightarrow 0$

- always start with _____, then apply non-ideal properties _____.

Op-amp circuits

4

Comparator



analog signal in

- comparator =

problems with comparator

soln.: