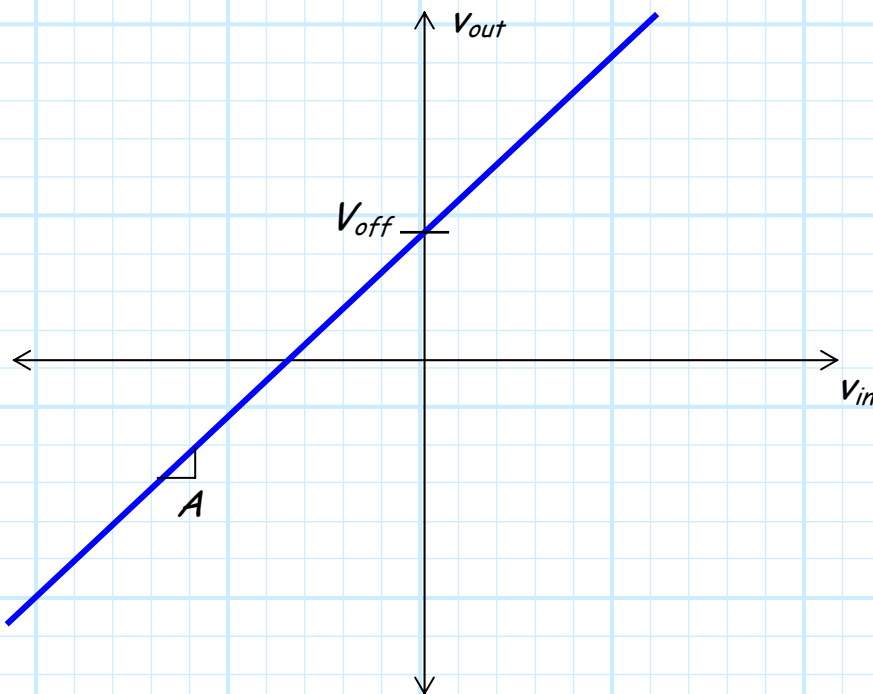


## 2.7 DC Imperfections

Reading Assignment: 98-104

In **addition** to saturation and slew-rate limiting, **another** non-linear behavior of amplifiers is a **DC output offset!**



Amplifiers built with op-amps can/will exhibit this non-linear behavior, mainly for **two** separate reasons!

HO: THE INPUT OFFSET VOLTAGE

EXAMPLE: THE INPUT OFFSET VOLTAGE

The **second** reason for output offsets is there is a constant **bias current** flowing into the input terminals.

### HO: THE INPUT BIAS CURRENT

### EXAMPLE: THE INPUT BIAS CURRENT

Fortunately, we can **minimize** the DC output offset due the input bias current with **one simple design rule**.

### HO: REDUCING THE EFFECT OF THE INPUT BIAS CURRENT

Finally, we find that real op-amps have **input** and **output** resistances that are not **quite** ideal!

### HO: REAL OP-AMP INPUT AND OUTPUT RESISTANCES