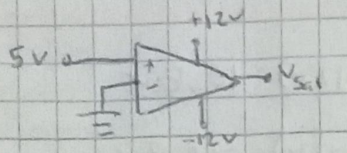
Tarea 5. Ejercicios de amp-op en lazo abierto

Los amplificadores operacionales que no tienen retroalimentación siempre se saturan.

Si V_D es positivo, entonces el $V_{sal} = +V_{sat}$
Si V_D es negativo, entonces el $V_{sal} = -V_{sat}$
Si V_D es cero, entonces el $V_{sal} = \pm V_{sat}$

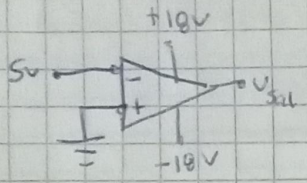


$+V_{sat} = 90\%(+V_{cc}) = 90\%(12V) = \underline{10.8V}$

$-V_{sat} = 90\%(-V_{cc}) = 90\%(-12V) = -10.8V$

$V_d = V^+ - V^- \cong 5V - 0V = 5V$

$V_{sal} = +V_{sat} = \underline{10.8V}$

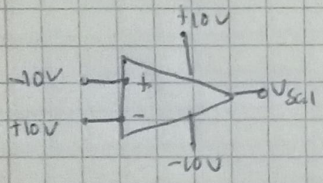


$+V_{sat} = 90\%(+V_{cc}) = 90\%(18V) = 16.2V$

$-V_{sat} = 90\%(-V_{ee}) = 90\%(-18V) = -16.2V$

$V_d = V^+ - V^- = 0V - (5V) = -5V$

$V_{sal} = -V_{sat} = \underline{-16.2V}$

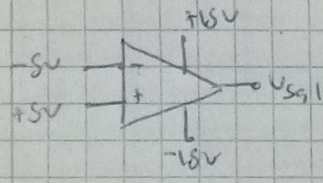


$+V_{sat} = 90\%(+V_{cc}) = 90\%(10V) = 9V$

$-V_{sat} = 90\%(-V_{ee}) = 90\%(-10V) = -9V$

$V_d = V^+ - V^- = +10V + 10V = -20V$

$V_{sal} = -V_{sat} = \underline{-9V}$



$+V_{sat} = 90\%(+V_{cc}) = 90\%(15V) = 13.5V$

$-V_{sat} = 90\%(+V_{ee}) = 90\%(-15V) = -13.5V$

$V_D = V^+ - V^- = 5V - (-5V) = 5V + 5V = 10V$

$V_{sal} = +V_{sat} = \underline{13.5V}$

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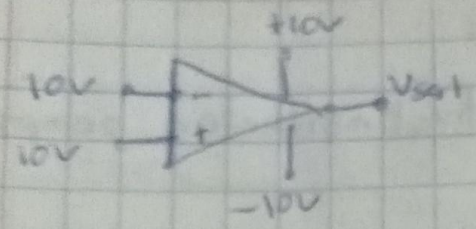
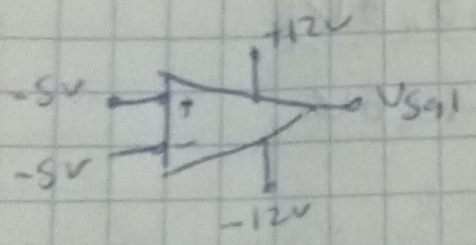


$+V_{sat} = 90°L(+V_{cc}) = 90°L(10V) = 9V$

$-V_{sat} = 90°L(-V_{cc}) = 90°L(-10V) = -9V$

$V_D = V^+ - V^- = 10V - 10V = 0V$

$V_{sal} = \mp V_{sat} = \pm 9V$



$+V_{sat} = 90°L(+V_{cc}) = 90°L(12V) = 10.8V$

$-V_{sat} = 90°L(-V_{cc}) = 90°L(-12V) = -10.8V$

$V_D = V^+ - V^- = (-5V) - (-5V) = -5+5V = 0V$

$V_{sal} = \mp V_{sat} = \pm 10.8V$