Task 1:

I\_ref = 204.5 uA

Current through pin 14 resistor: 233.71 uA

Pin 10 resistor: 461.7 uA

Sources of error: nonideal mosfets

Imperfect resistors

Resistance of wires

Iref is not perfectly 200uA

task 2. 2

Ch1: wave in : 100mVpp

Ch2: output : 3.4 Vpp

Gain: vout/vin =

A screenshot of a computer

Description automatically generated

A screenshot of a computer

Description automatically generated

Task 3

Estimate gain of CSA in task 6.5.1 (task 1)

Estimate open loop gain from 6.5.2 (task 2)

Screenshots next few pages (2v, 1v, .5v, -1v, -2v)

Has DC and sin wave because I did sin first then realized it wanted a DC input. You can just ignore the sin wave unless its actually useful 😊

Screenshots:

2v:

A screenshot of a computer

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A screenshot of a computer

Description automatically generated

1v:

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A screenshot of a computer

Description automatically generated

5mV:

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-1v:

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-2v:

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[end of task 3 screenshots]

Task 3.8

Input = 2sin(2pi100t) instead of DC

A screenshot of a computer

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Task 4.3

Common drain amplifier added

Square : output (this would be a sin wave too but the gain is so high it clips)

Sin: input (as usual)

A screen shot of a computer

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Task 5.1

Too high and it clips it. This is wavegen at 200mV

Reasonable since we want to limit to 2V output and .2V input is good for our -10 gain

Expected gain: -10

Vin = 404.11 mVpp = .40411 Vpp

Vout = 3.8836 Vpp

Gain = 3.8836 / .40411 = 9.61287 (but negative)

Percent error: 3.8713%

A screen shot of a computer

Description automatically generated