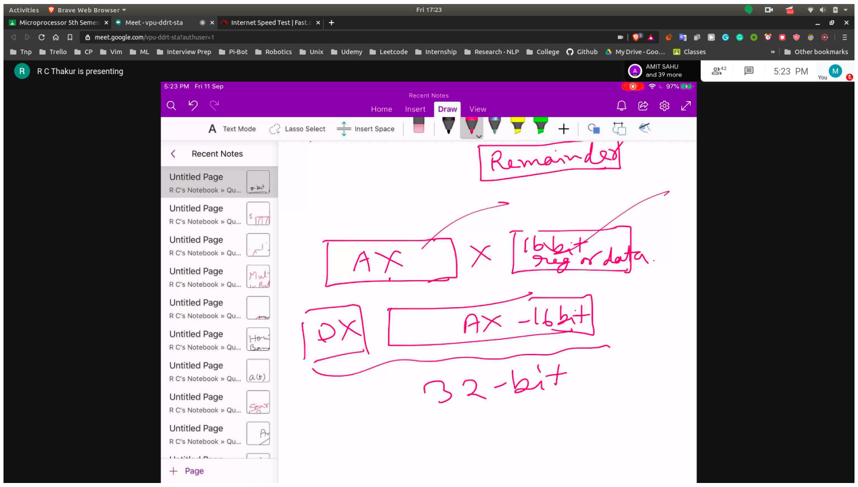
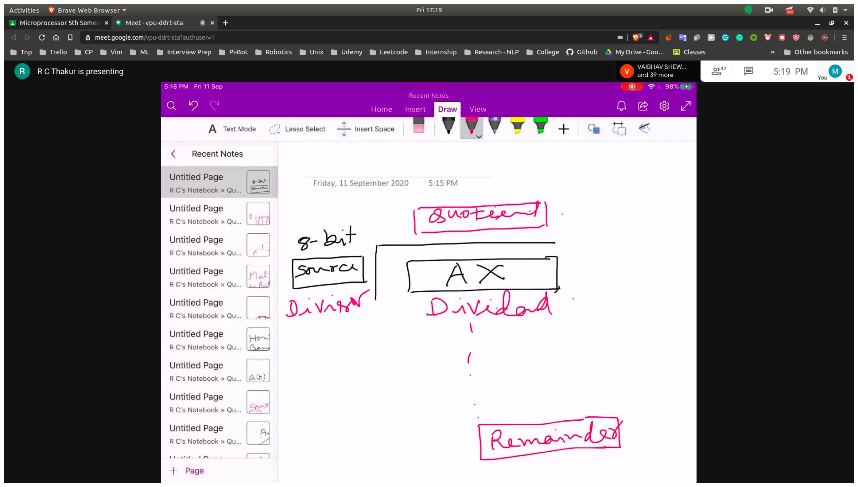
# Arithemeric Instruction

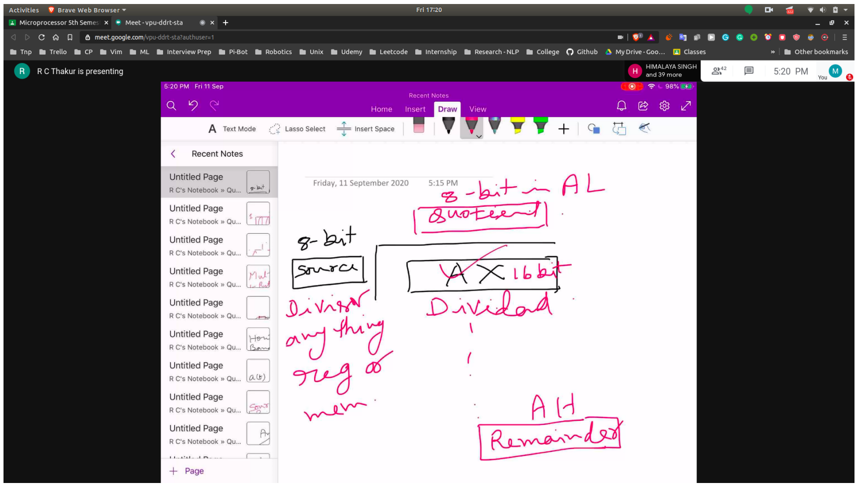
## Multiplication

- 

## Division

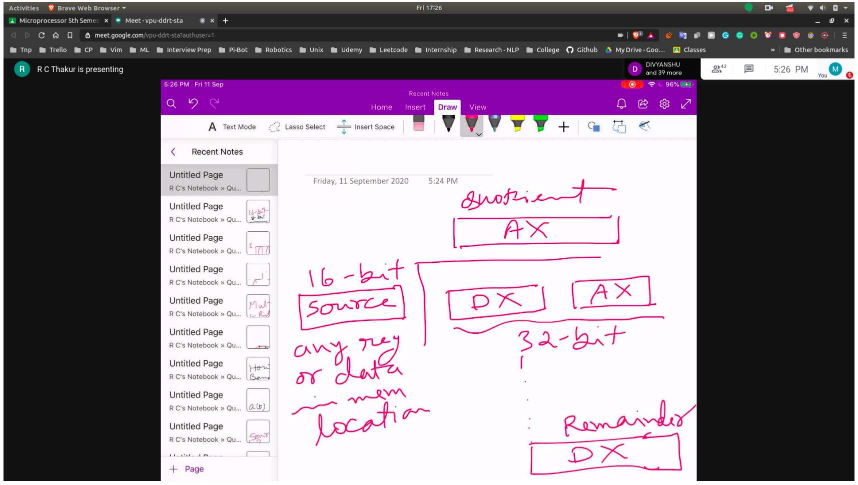
- 

- In terms of Memory

- 

- Basically divisiion is just the opposite of multiplication

## 32 bit division

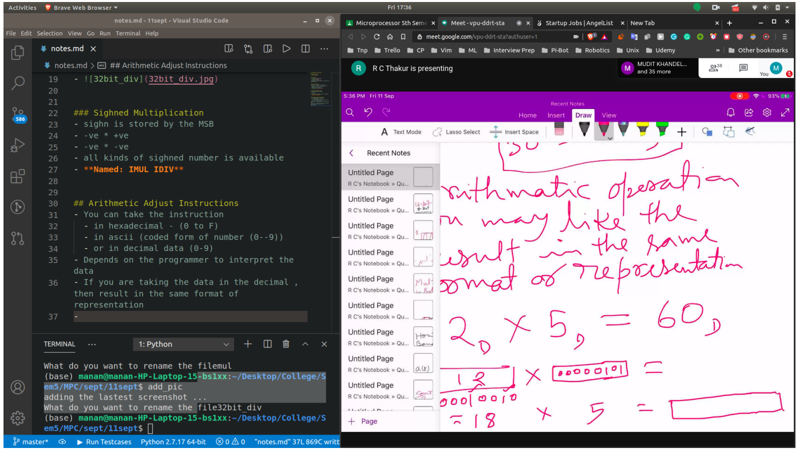
- dividend is composed of DX and AX
- divisor is 16bit , (can be in any reg)
- quotient will be in ax registor
- remained in dx register
- 

## Sighned Multiplication

- sighn is stored by the MSB
- -ve * +ve
- -ve * -ve

- all kinds of sighned number is available
- **Named: IMUL IDIV**

## Arithmetic Adjust Instructions

- You can take the instruction
  - in hexadecimal - (0 to F)
  - in ascii (coded form of number (0–9))
  - or in decimal data (0-9)
- Depends on the programmer to interpret the data
- If you are taking the data in the decimal , then result in the same format of representation
- If the register stores the data in binary , then it might interpret it wrong
- For eg.
  - basically multiplication is in binary
  - 

Activities
Brave Web Browser
notes.md - 11sept - Visual Studio Code
File Edit Selection View Go Run Terminal Help
notes.md
notes.md > ## Arithmetic Adjust Instructions
TERMINAL
1: Python
master*
Run Testcases
Python 2.7.17 64-bit
0 0
"notes.md" 37L 869C writt
Microprocessor 5th Seme
Meet - vpu-ddrt-sta
Startup Jobs | AngelList
New Tab
meet.google.com/vpu-ddrt-sta?authuser=1
Tnp Trello CP Vim ML Interview Prep Pi-Bot Robotics Unix Udemy Other bookmarks
R C Thakur is presenting
MUDIT KHANDEL... and 35 more
38
You
5:36 PM Fri 11 Sep
93%
Recent Notes
Home Insert Draw View
Text Mode Lasso Select Insert Space
Recent Notes
Untitled Page
R C's Notebook » Qu...
+ Page

```
- ![32bit_div](32bit_div.jpg)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-
```

```
What do you want to rename the filemul
(base) manan@manan-HP-Laptop-15-bs1xx:~/Desktop/College/Sem5/MPC/sept/11sept$ add_pic
adding the lastest screenshot ...
What do you want to rename the file32bit_div
(base) manan@manan-HP-Laptop-15-bs1xx:~/Desktop/College/Sem5/MPC/sept/11sept$ 
```

rithmatic operation
m may like the
esult in the same
format of representation

$2_D \times 5_D = 60_D$

$\boxed{12} \times \boxed{00000101} =$

$0001\ 0010 \times 5 = \boxed{\phantom{0000}}$

$= 18$

### Solution

- Hence we have adjustment instruction to covert from one form to another
  - **Look in the book**
  - DAA
  - DAS
  - Similarly we have for ascii
  - AAM (ascci adjust after mul)
  - AAS ( " subtraction)
  - AAD ( " division)
- Diff b/w Decimal and Ascii
- In ascii simply does the unpacking of the packed number so that you can add seperately the base value of ASCII ie 30

## Logical Instruction

- 2 imp instruction
- Shift
  - Like mul by 2
  - Div by 2
- Rotate