

Date:

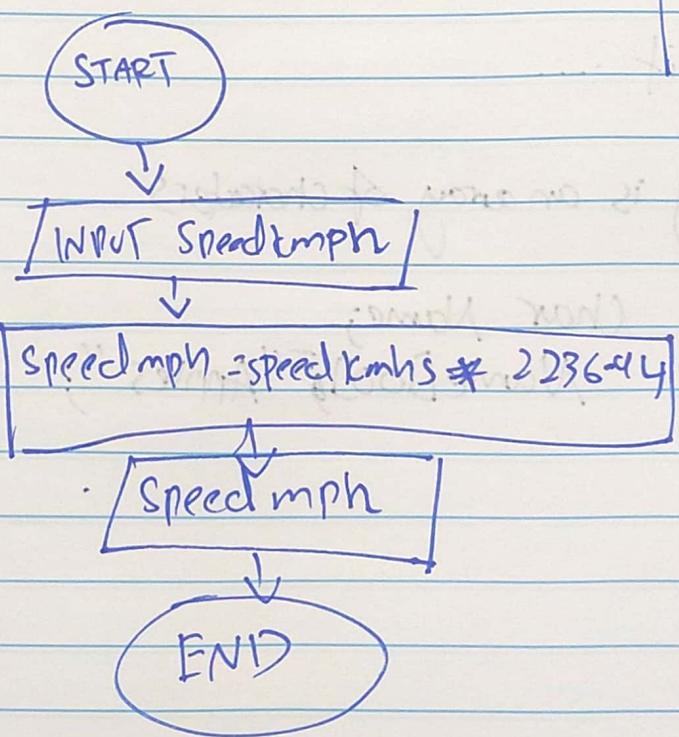
245K-0682

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Assignment 1 Pf theory

Problem 1

INPUT	Process	OUTPUT
INPUT speed kmph	$1 \text{ km/s} = 2236.94 \text{ mph}$ $\text{Speed mph} = \text{Speed kmph} * 2236.94$	OUTPUT Speed mph



INPUT Speed kmph

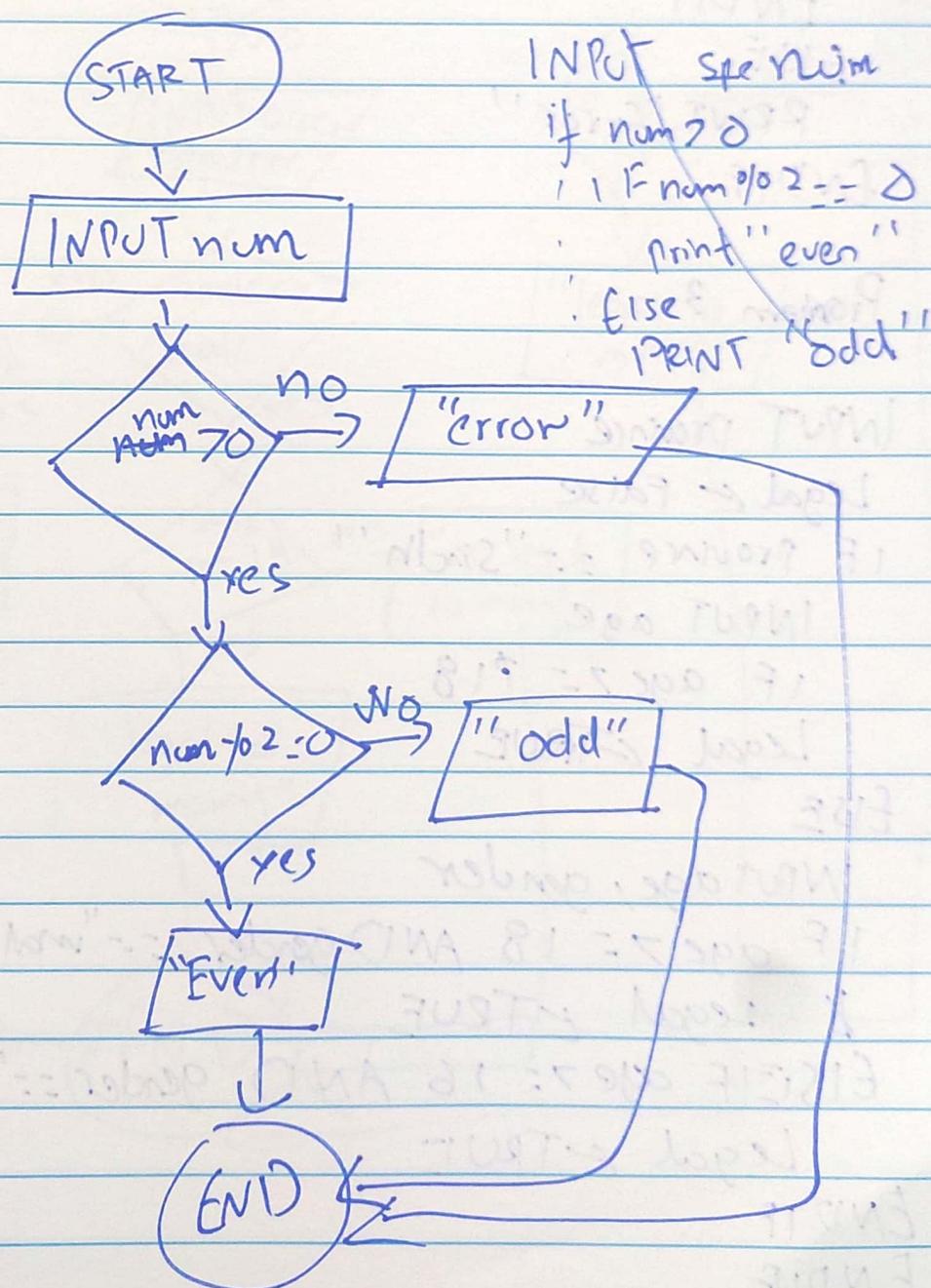
$$\text{Speed mph} = \text{Speed kmph} * 2236.94$$

PRINT Speed mph

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Problem2:-

INPUT	Process	OUTPUT
num \neq	IF $n < 0$ error	PRINT even/odd
num	IF $n \geq 0$, divisible by 2 IF remainder = 0, even if else odd	

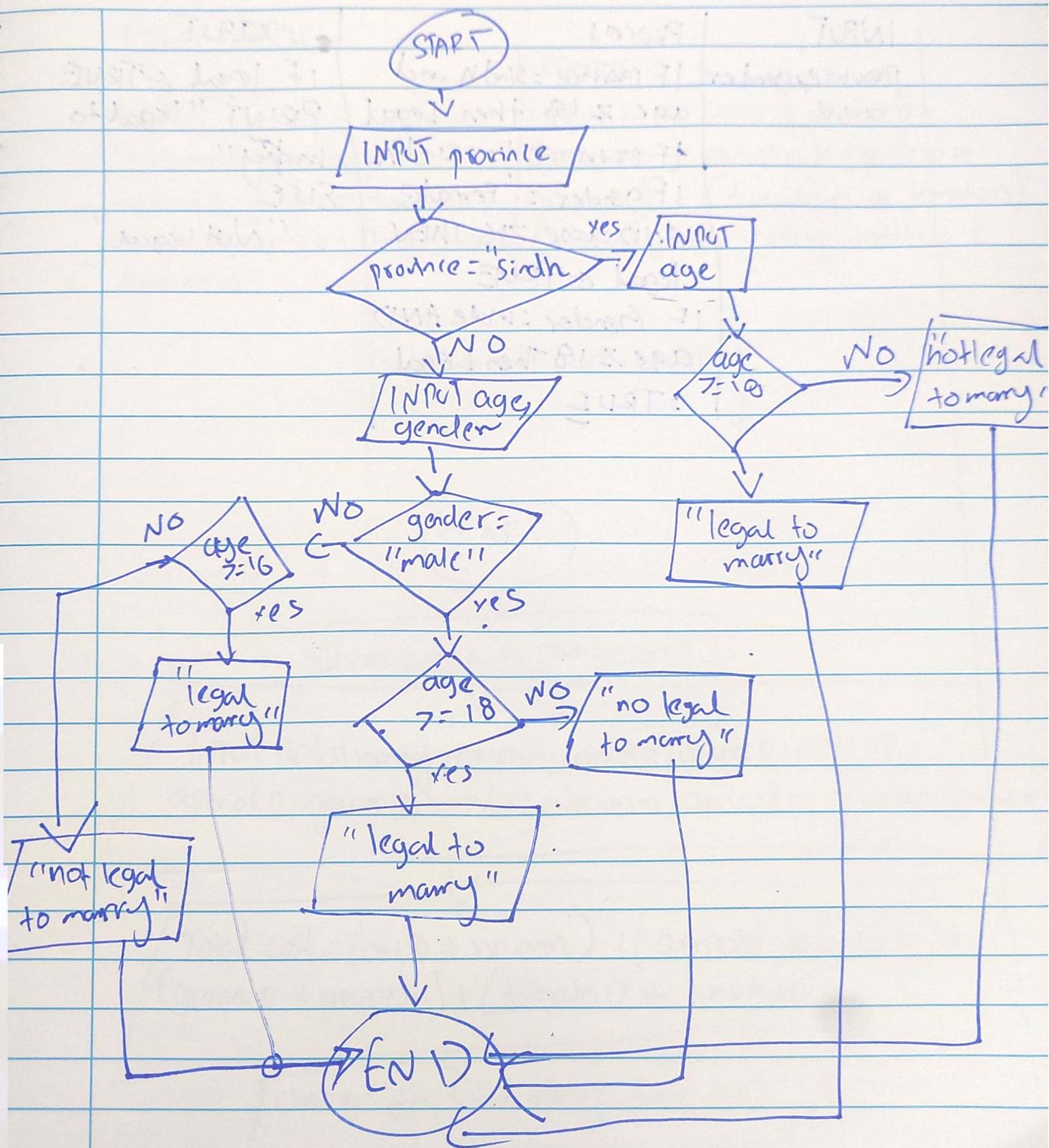


Date:

```
INPUT num
IF num > 0
    IF num%2 == 0
        PRINT "Number even"
    ELSE
        PRINT "odd"
    ENDIF
ELSE
    PRINT "Error"
ENDIF
```

Problem 3:-

```
INPUT province
Legal ← False
IF province == "Sindh"
    INPUT age
    IF age >= 18
        Legal ← TRUE
    ELSE
        INPUT age, gender
        IF age >= 18 AND gender == "male"
            Legal ← TRUE
        ELSEIF age >= 16 AND gender == "Female"
            Legal ← TRUE
        ENDIF
    ENDIF
```



Date:

INPUT

Province/gender
age

PROCESS

IF province = Sindh and
age ≥ 18 then Legal
IF province != Sindh
IF gender = Female
AND age ≥ 16 THEN
legal \leftarrow TRUE
IF Gender = male AND
age ≥ 18 Then Legal
 \therefore TRUE

OUTPUT

IF legal \leftarrow TRUE
PRINT "legal to
many"
ELSE
"Not legal"

PROBLEM 4:-

INPUT

Total money, onionp

apricotp, grapesp, tomato

onionn, apricotn, grapesn

tomaton

process

$$\text{total cost} = (\text{onionp} * \text{onionn}) + (\text{apricotp} * \text{apricotn}) + (\text{grapesp} * \text{grapesn}) + (\text{tomatop} * \text{tomaton})$$

Change = total money - total cost

output

print total cost, change

START

Total cost $\leftarrow 0$, change $\leftarrow 0$

INPUT total money, onionp, apricotp, grapesp, onionn, apricotn, grapesn, tomato

$$\text{Total cost} = (\text{onionp} * \text{onionn}) + (\text{apricotp} * \text{apricotn}) + (\text{grapesp} * \text{grapesn}) + (\text{tomatop} * \text{tomaton})$$

$$\text{change} \leftarrow \text{total money} - \text{total cost}$$

Total cost
change

END

Total cost < 0

Change EO

INPUT ← total money, onionp, onionn, apricotp, apricotn,
grapesp, grapesn, tomatoP, tomatoN

$$\text{Total cost} = (\text{onionsp} * \text{onionsn}) + (\text{apricotsp} * \text{apricotn}) + (\text{grapesp} * \text{grapesn}) + (\text{tomatosp} * \text{tomaton})$$

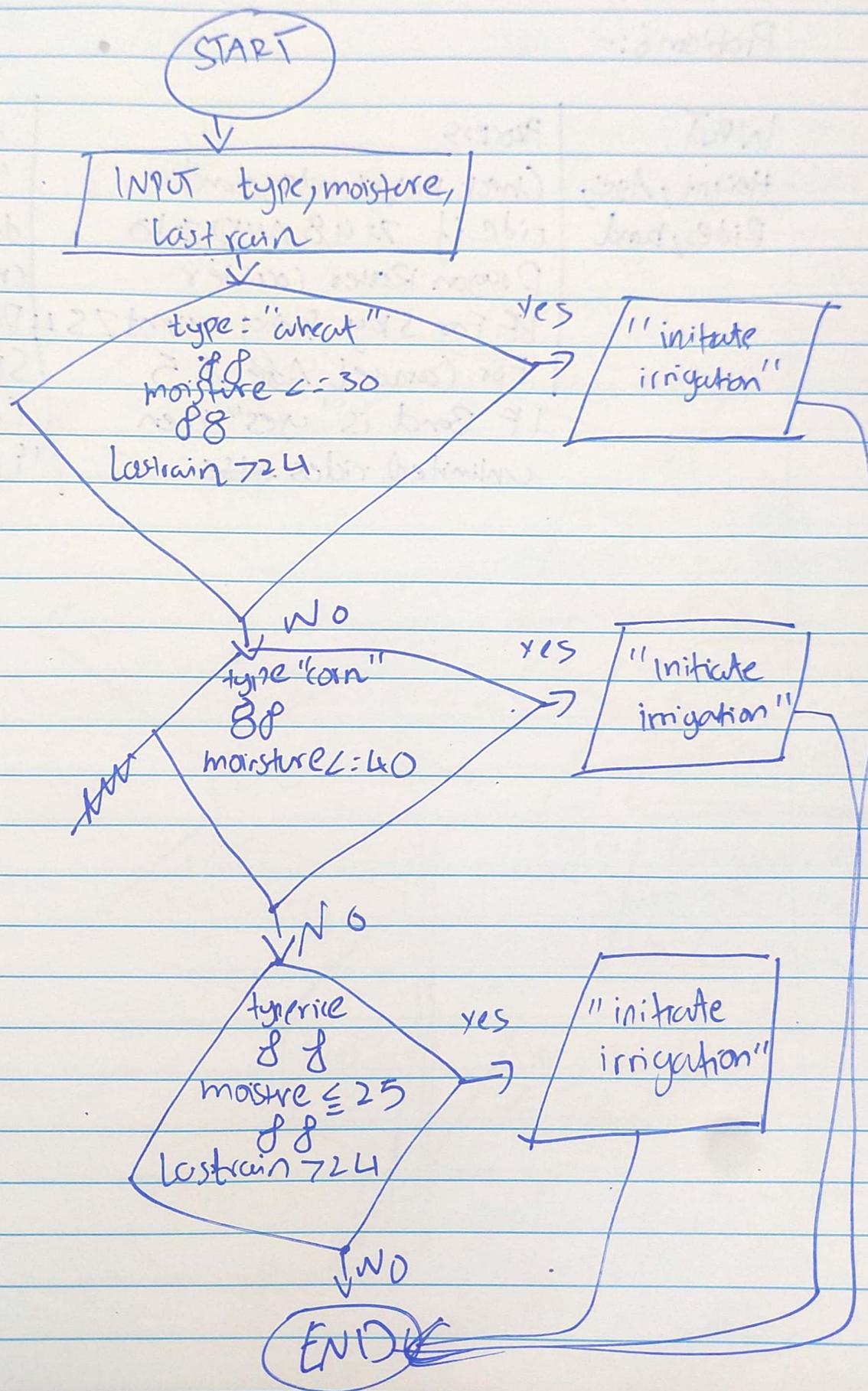
Change = Total money - Total cost.

PRINT & Total cost / Change

Problem 5:-

INPUT	PROCESS	OUTPUT
type, moisture lastrain	<p>irrigation < FALSE</p> <ul style="list-style-type: none"> check moisture -/. for each type check rain in last 24 hours 	<p>PRINT . "irrigation applied "</p> <p>if irrigation < TRUE</p>

Date: _____



Date:

Problem 6:-

INPUT

Height, Age,
Ride, band

PROCESS

Check height and age and
ride if $H \geq 48$ AND $A \geq 10$

Dragon Roler coaster

IF For Sky Swing height ≥ 54

• For Carousel Age ≥ 5

IF Band is "yes" then
unlimited rides else

OUTPUT

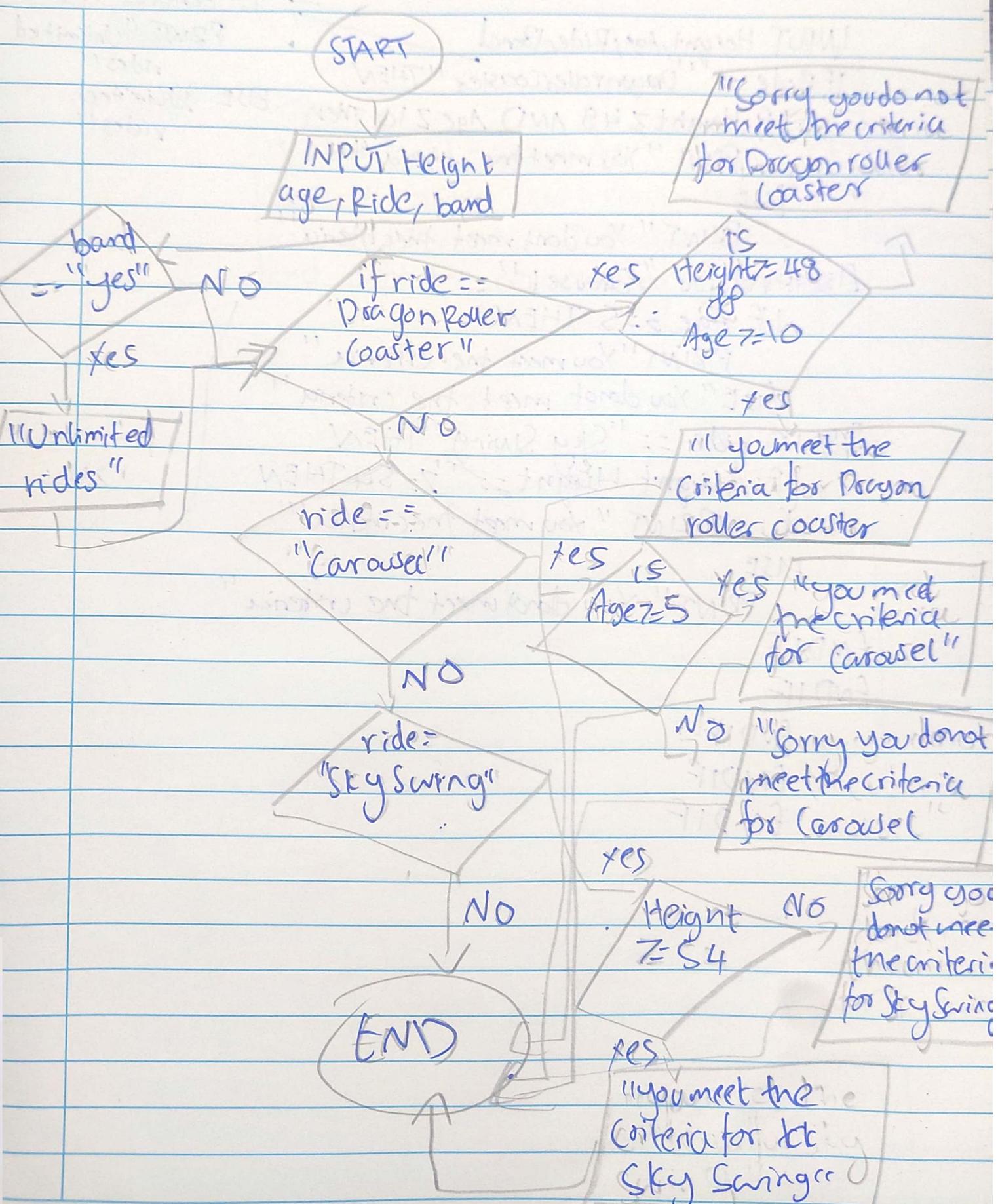
"You meet /
do not meet the
criteria for

Dragon Roler coaster /

Sky Swing /
Carousel"

"Unlimited rides"

Date: _____



Date:

INPUT Height, Age, Rider, Bond

IF Ride == "Dragonroller Coaster" THEN

IF Height ≥ 48 AND Age ≥ 10 THEN

PRINT "You meet the criteria"

IF Bond == "Yes"

PRINT "Unlimited rides"

ELSE "Unlimited rides"

ELSE

PRINT "You don't meet the criteria"

ELSE IF Ride == "Carousel"

IF Age ≥ 5 THEN

PRINT "You meet the Criteria"

ELSE "You do not meet the criteria"

ELSE IF Ride == "Sky Swing" THEN

IF Height ≥ 54 THEN

PRINT "You met the criteria"

ELSE

PRINT "You do not meet the criteria"

ENDIF

ENDIF

ENDIF

ENDIF

ENDIF

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Problem 7:-

INPUT

Num

PROCESS

If Num Use if condition to
Check all possible binary combinations
for a 7 segment LCD panel display
and print the corresponding com numbers

OUTPUT

PRINT
"FloorNum

START

INPUT Num

FloorNum = 0

Enter a 7 digit number
comprising of 1's and 0's

Num

= 1110111

Yes

FloorNum <= 0

Floor Num

Num

= 0010010

Yes

FloorNum = 1

Floor Num

Num

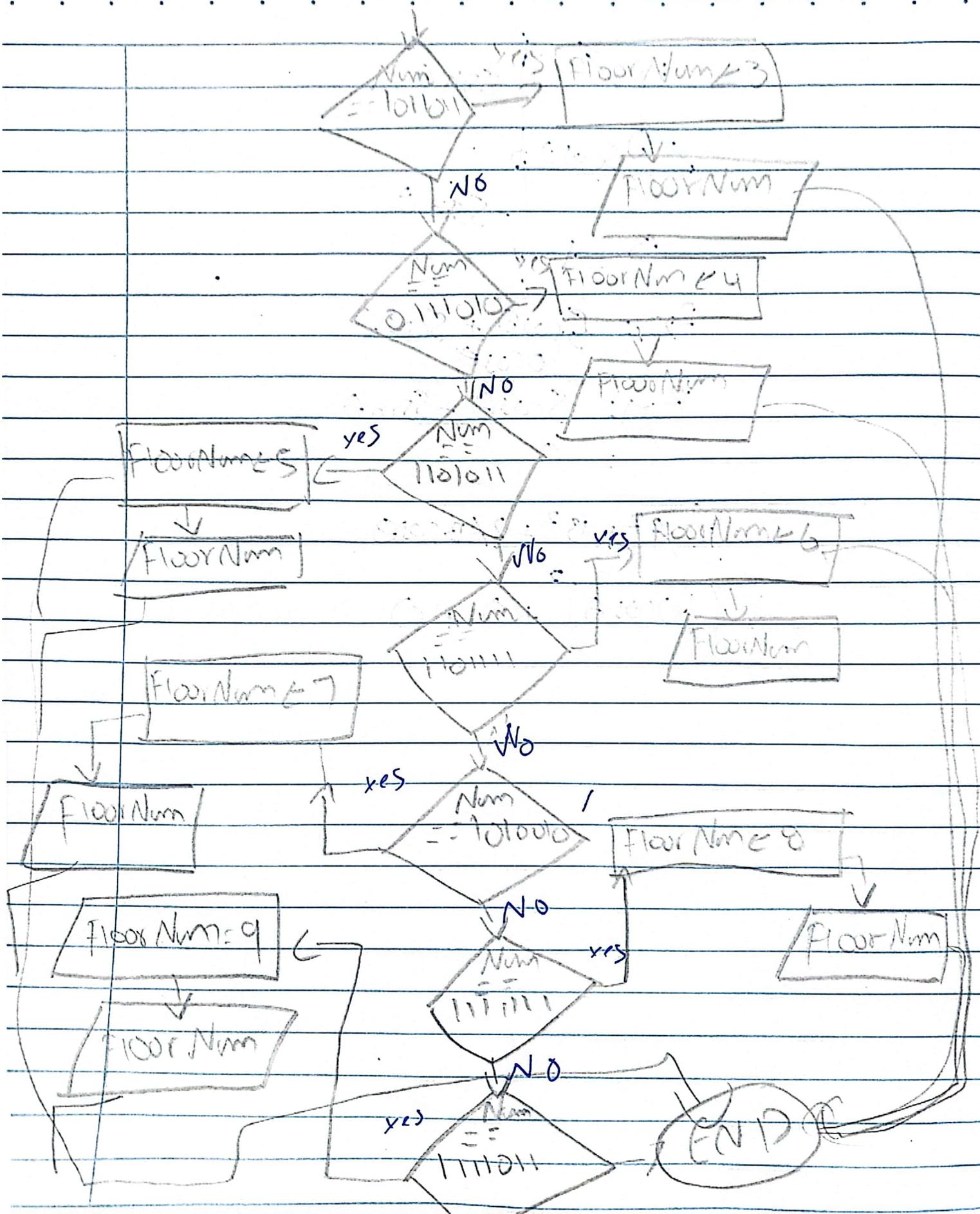
= 1011101

Yes

FloorNum = 2

Floor Num

Date: _____



Date: _____

INPUT < Num

FloorNum <= 0

IF N PRINT "firstera 1 digit binary number"

IF Num == 1110111

FloorNum <= 0

PRINT FloorNum

IF Num == 0010010

FloorNum <= 1

PRINT FloorNum

IF Num == 1011101

FloorNum <= 2

PRINT FloorNum

IF Num == 1011011

FloorNum <= 3

PRINT FloorNum

IF Num == 0111010

FloorNum <= 4

PRINT FloorNum

IF Num == 1101011

FloorNum <= 5

PRINT FloorNum

IF Num == 1101111

FloorNum <= 6

PRINT FloorNum

IF Num == 1010010

FloorNum <= 7

PRINT FloorNum

IF Num == 1111111

FloorNum <= 8

PRINT FloorNum

IF Num == 1111011

FloorNum <= 9

PRINT FloorNum

ENDIF

Problem 8:-

OUTPUT

PRINT Sum

INPUT

Num

Sum < 0

Process

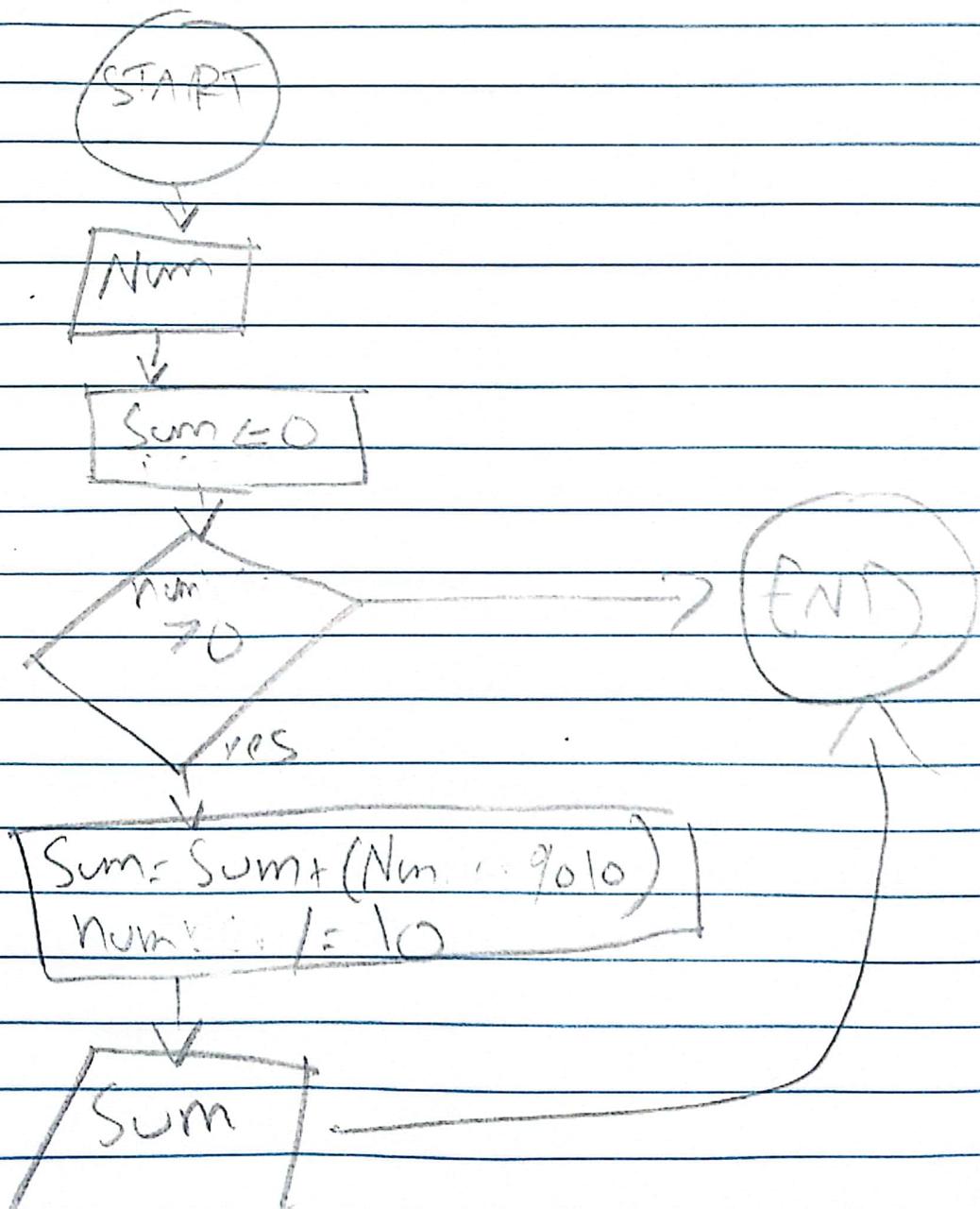
if number > 0

Sum = Sum + (Number % 10)

then use integer division

to remove the last digit

num /= 10



Sum = 0

INPUT Num

While num > 0

Sum = Sum + (Num % 10)

Num /= 10

ENDwhile

PRINT Sum

P Problem 9:-

Input	Process	Output
Day1, month1, year1,	.) validate Dob and	
Day2, month2, year2	today's date	Age
Age	.) calculate age in yy/mm/dd	
DOB, today's Date	.) Adjust for leap year	

Pseudocode :-

INPUT Ask user to enter a number
Ask the user to enter birthday in

INPUT DOB, TodayDate

PRINT "Enter DOB, Today's date"

Check the validity of the dates

if month ≥ 1 AND ≤ 12

Check validity of days (for e.g April 31 is invalid)

Check leap year

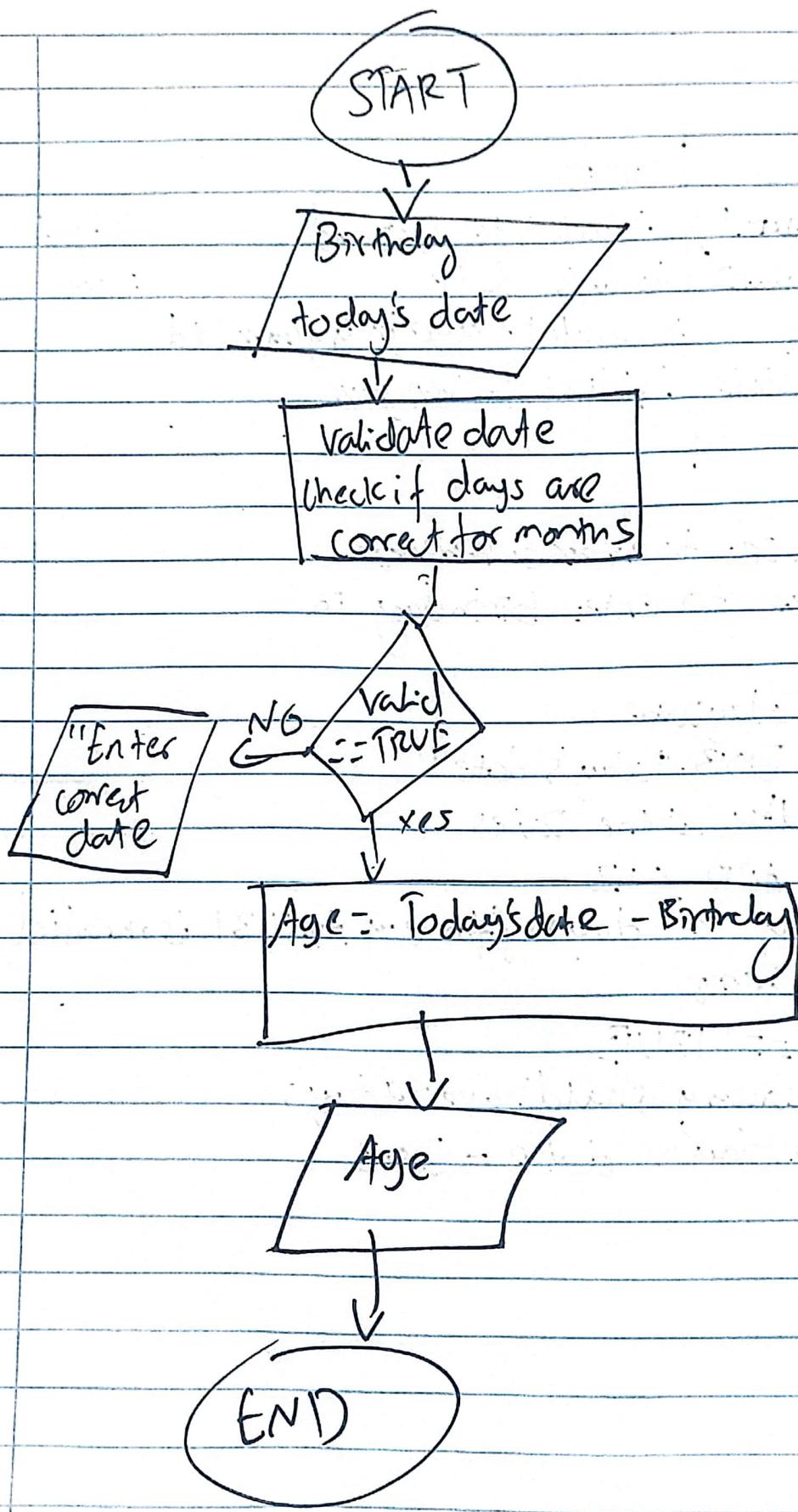
if leap year == TRUE

Month February should have 29 days

To Age = Today's date - DOB

PRINT Age

Date: _____



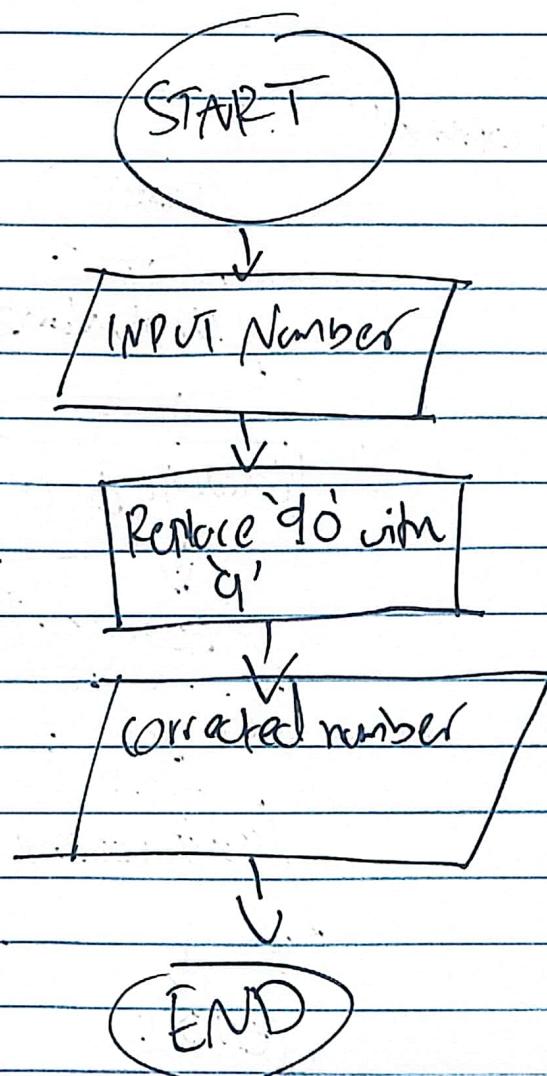
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Problem 10 :-

INPUT Process OUTPUT

Number	Read INPUT Replace '90' with 9	Corrected Number
--------	--------------------------------------	------------------

INPUT - Number
Replace 90 with 9
PRINT Corrected Number



Problem 11:-

INPUT	Process	OUTPUT
Any two numbers greater than 0	Calculate GCD for two numbers: if GCD is 1 number: coprime	"Coprime" or "not coprime"
	Else not coprime	

INPUT \leftarrow Num1, Num2

GCD = Temp = b

 $b = a \% b$

a = temp

IF GCD = 1

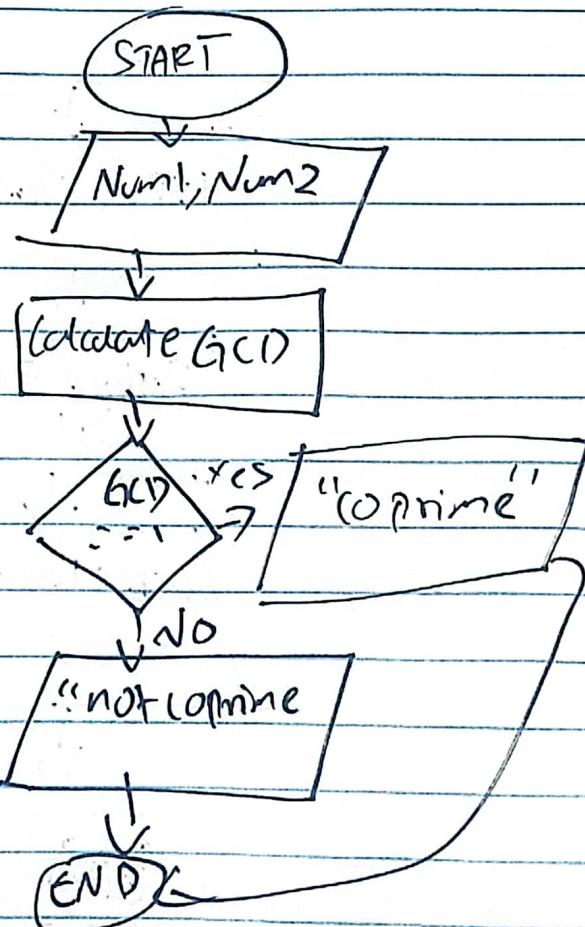
Print "Numbers are coprime!"

Else

"Not coprime"

ENDIF

END



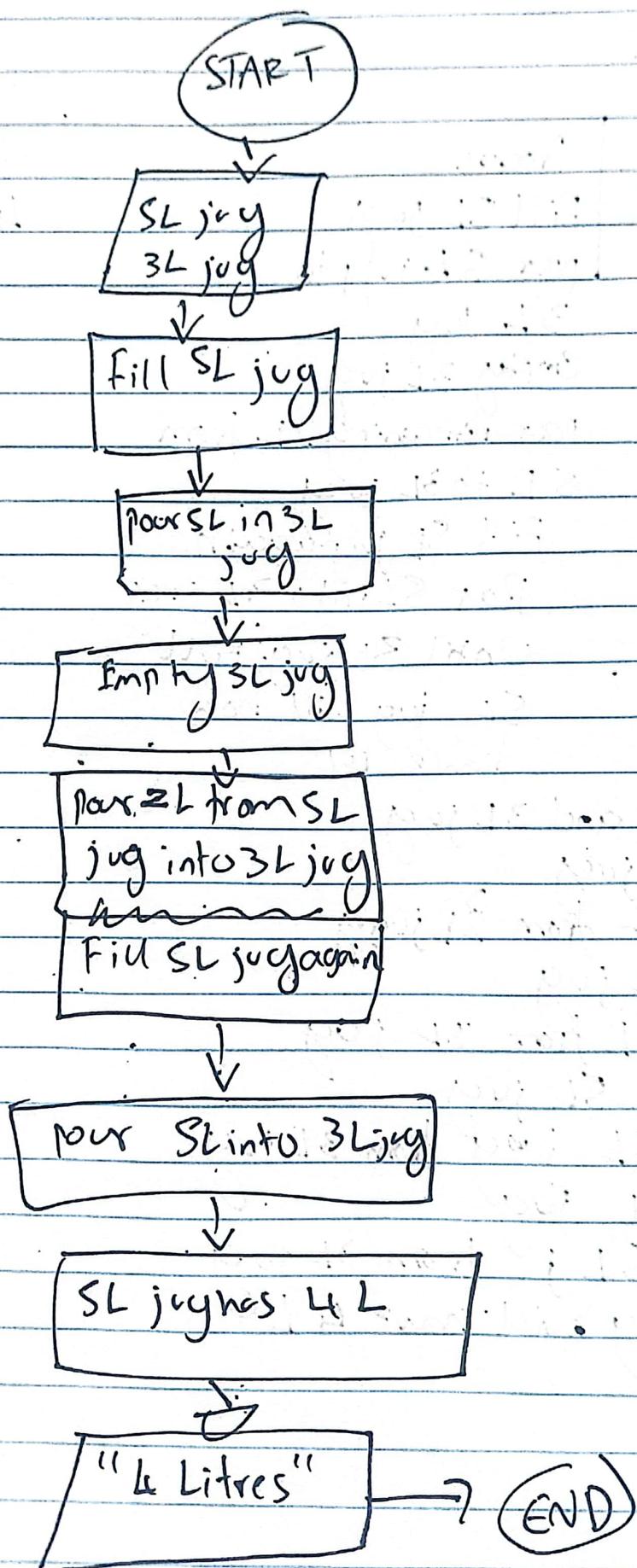
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Problem 12:-

INPUT	Process	Output
SL liter and 3 L jug	Fill SL jug Pour SL jug to 3 L jug. Empty 3L jug Pour remaining 2L from SL to 3L jug Fill SL jug again Pour SL into 3L jug Until 3L jug = Full SL jug will now have 4L	4 L

INPUT SL and 3L jug
Fill 3L jug
Fill SL from 3L jug
Fill 3L jug
Fill SL from 3L jug
Empty SL jug
Fill USL jug from 3L jug
Fill 3L jug
Fill SL jug from 3L jug
SL jug will have 4L
END

Date: _____



Date: _____

Problem 13 :-

INPUT

 K, L

Process

Store value in gcd amount
 of water multiple of
 GCD of K, L measured
 All possible quantity of
 water is measured
 Next loop calculate
 all possible water
 quantity as input

OUTPUT

Print "the
 max amount
 and all possible
 quantities
 that can be
 measured"

INPUT $\leftarrow K, 'L'$ $gcd = K$ $a = L$ while $a \neq 0$ rem $\leftarrow a$.

END WHILE:

 $max = K + L - gcd$

Print "max quantity is max"

Print "possible quantities"

 $i = 1;$ while ($i \leq max/gcd$) :

Print

 $i * gcd$

Endwhile.

Date:

