

CMS 10

10-1-08

11

PSEUDO-CODE

DETAILED

EXACT

EXPRESSIVE  
ASSOCIATE

←

COMPUTER  
LANGUAGES

PSEUDO-  
CODE

→

NATURAL  
LANGUAGES

OPERATIONS :

- o SEQUENTIAL
- o CONDITIONAL
- o ITERATIVE

## SEQUENTIAL OPERATIONS:

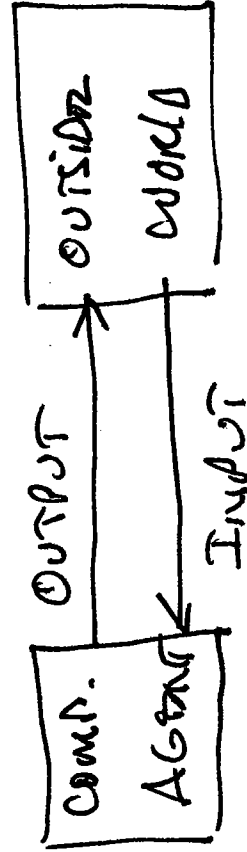
- calculation / assignment

Ex. variable ← expression

$$C_i \leftarrow Q_i + b_i + carry$$

$$x \leftarrow \frac{-b + \sqrt{b^2 - 4ac}}{2a}$$

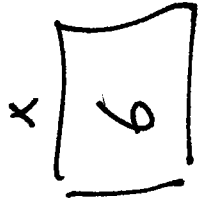
- Input / Output



Ex.

get variable

get x



print variable

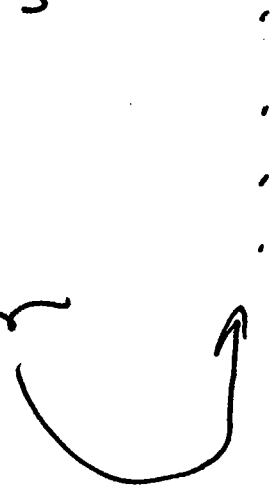
print x

print expression

print x+y

print 'error: division by zero'

{ print 'the value of x is ' x ' and the value of y is ' y



Ex. straight line Algorithm

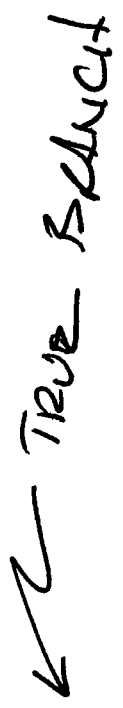
- 1.) get  $a, b, c, d$
- 2.)  $sum \leftarrow a + b + c + d$
- 3.)  $average \leftarrow \frac{sum}{4}$
- 4.) print average
- 5.) stop

CONDITIONAL OPERATIONS

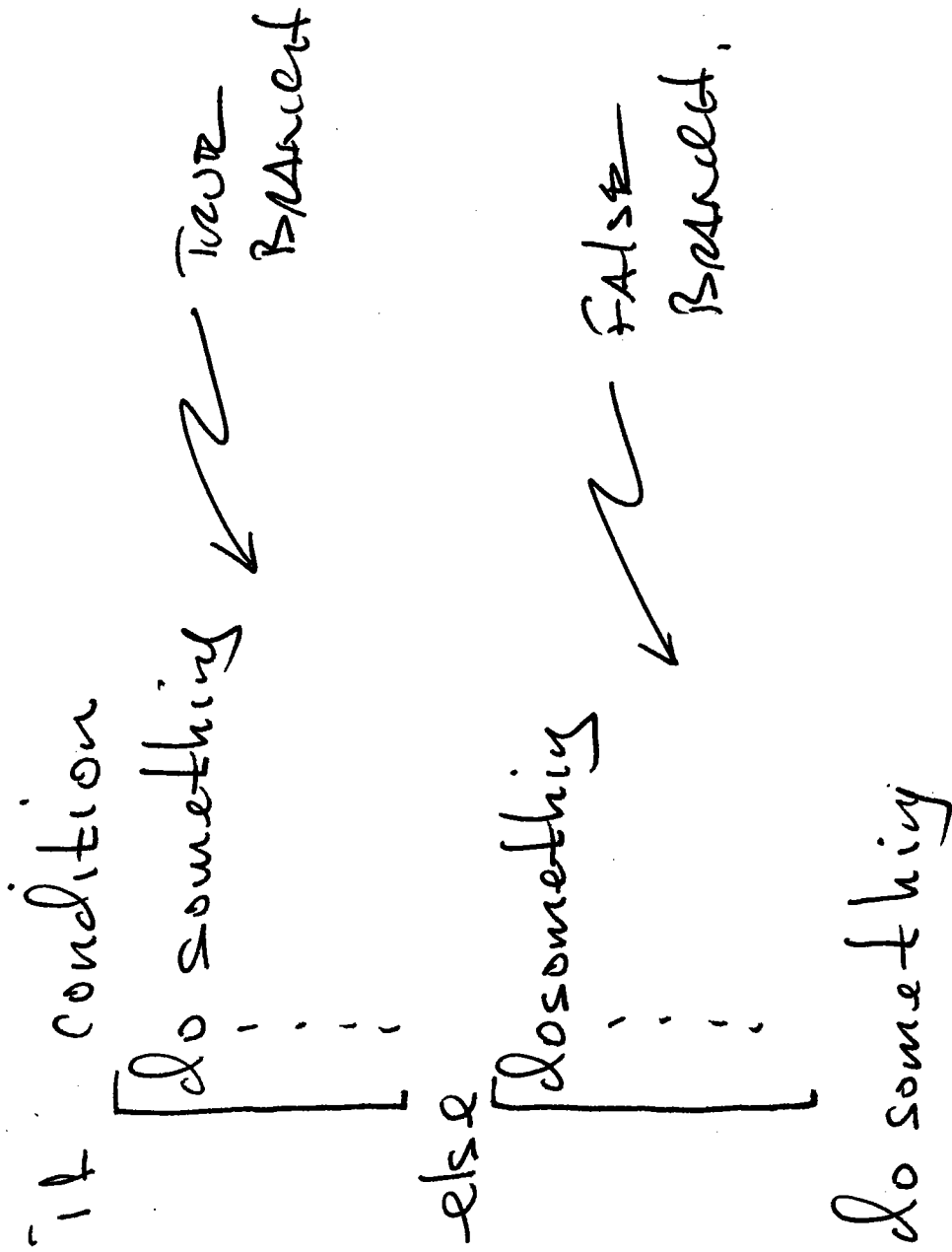
if or if-else



[ do something  
do something  
:  
do something ]



do something  
:  
do something



Ex. 1.) get a, b  
2.) if  $b = 0$   
3.) print 'error: division by zero'  
4.) else  
5.) quotient  $\leftarrow \frac{a}{b}$   
6.) print quotient  
7.) stop

□

ITERATIVE OPERATIONS

while, do-while, for

LOOP REPETITION  
CONDITIONS (LRC)

while condition

[do something

← loop body

]do something

do something



Ex:

- 1.) response ← 'yes'
- 2.) while response = 'yes'
- 3.)   get a, b
- 4.)   if b = 0
- 5.)    [print 'error: div. by zero'
- 6.)   else
- 7.)    [print  $\frac{a}{b}$
- 8.)    print 'continue ?'
- 9.)   get response
- 10.) stop

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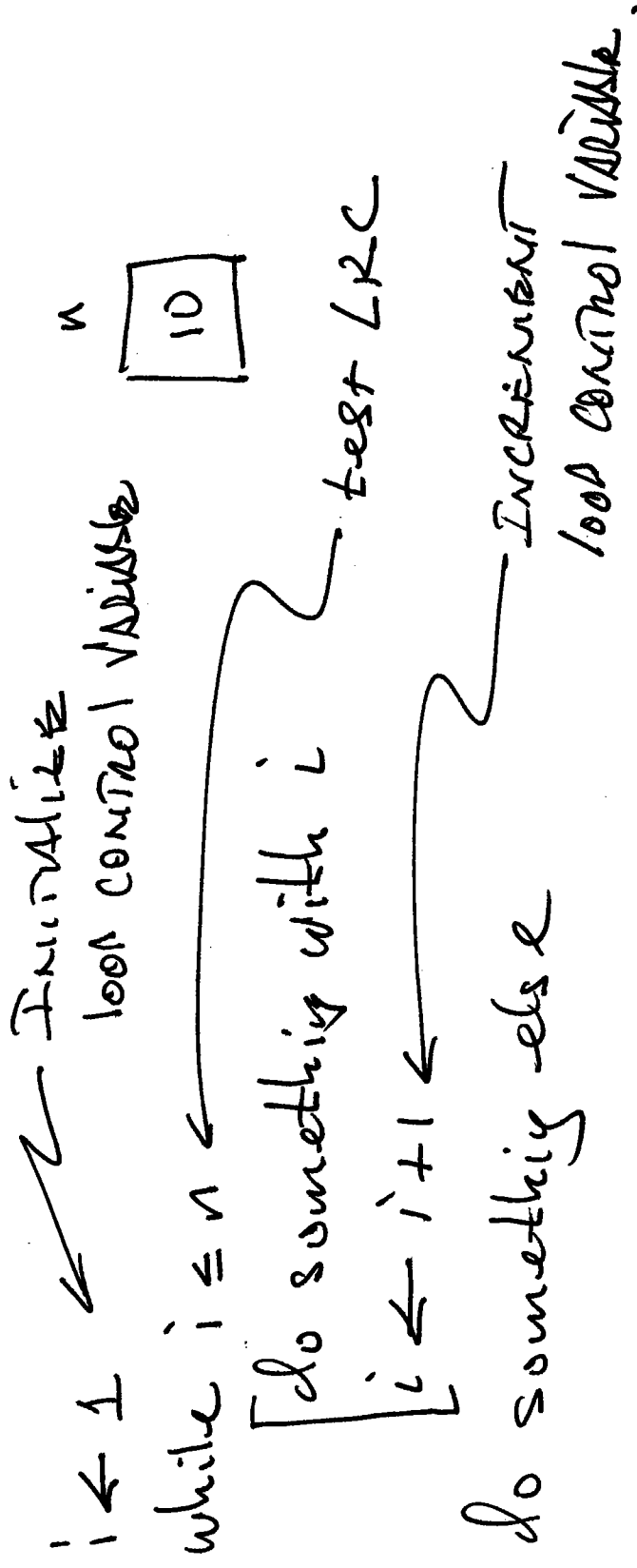
```
do [do something  
  |  
  |  
  | do something  
  ] loop body
```

```
while condition ← LRC
```

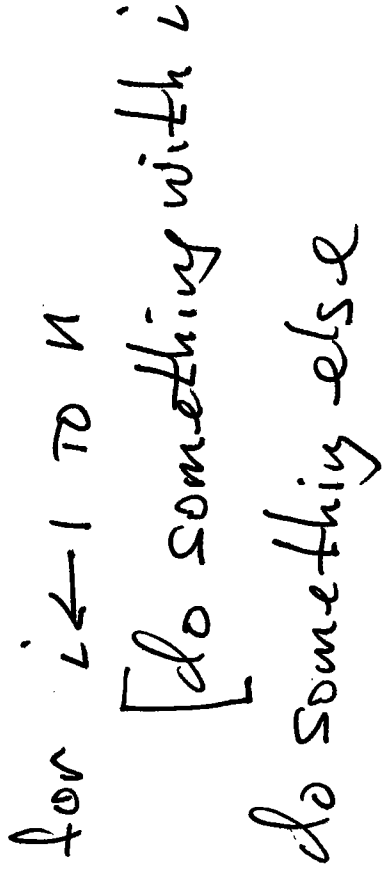
```
do something.
```

Ex. 1.) do  
2.) get a, b  
3.) if b = 0  
4.) print 'error:-----'  
5.) else  
6.) print a/b  
7.) print 'continue? '  
8.) get response  
9.) while response = 'yes'  
10.) stop

# Common while loop:



# Equivalent for loop:



Ex

- 1.)  $i \leftarrow 1$
- 2.) while  $i \leq 5$
- 3.) Print  $i^2$
- 4.)  $i \leftarrow i+1$
- 5.) stop

OUTPUT

1  
4  
9  
16  
25

- 1.) for  $i \leftarrow 1$  to 5
- 2.) Print  $i^2$
- 3.) stop

SAME OUTPUT.