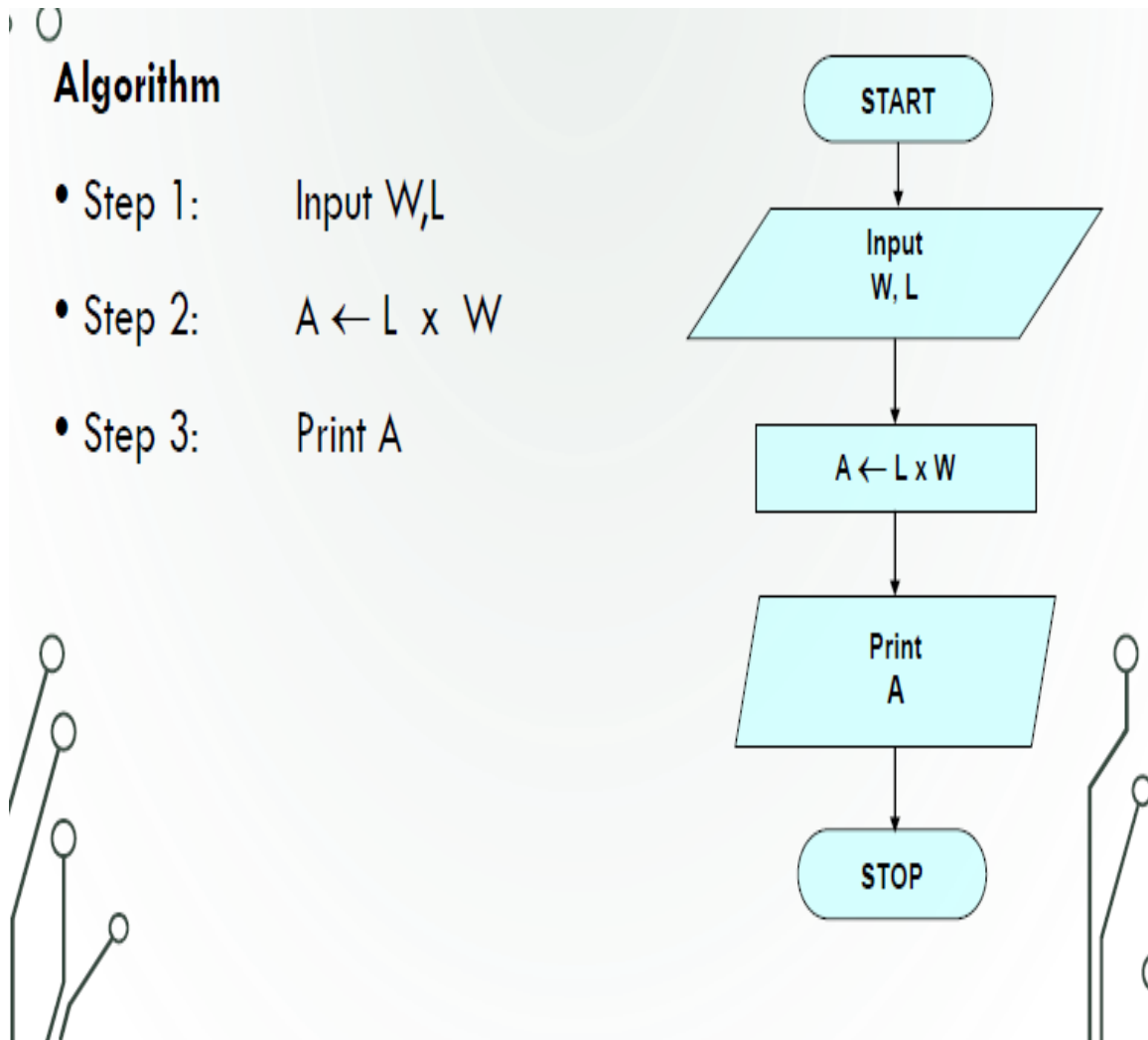


EXAMPLE 3

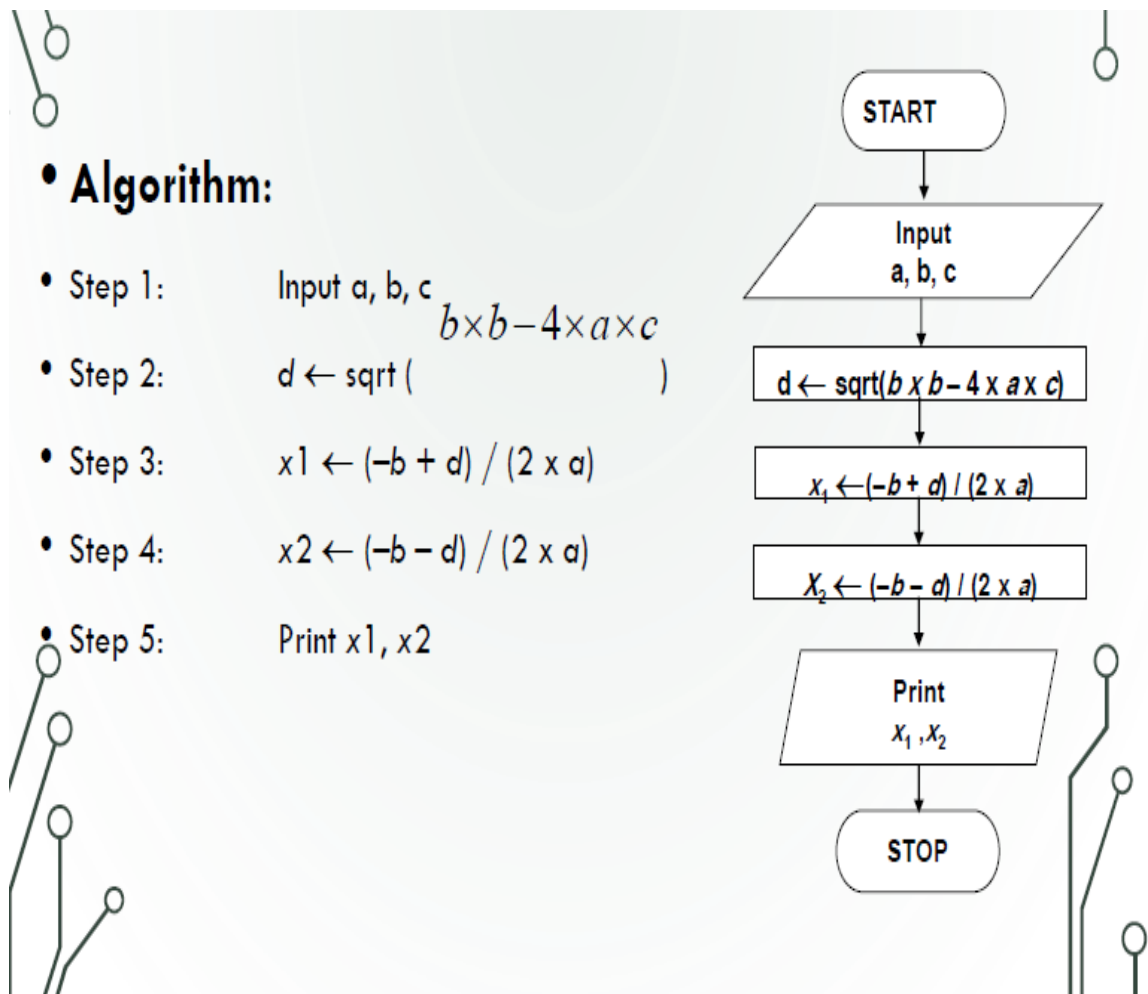
Write an algorithm and draw a flowchart that will read the two sides of a rectangle and calculate its area.



EXAMPLE 4

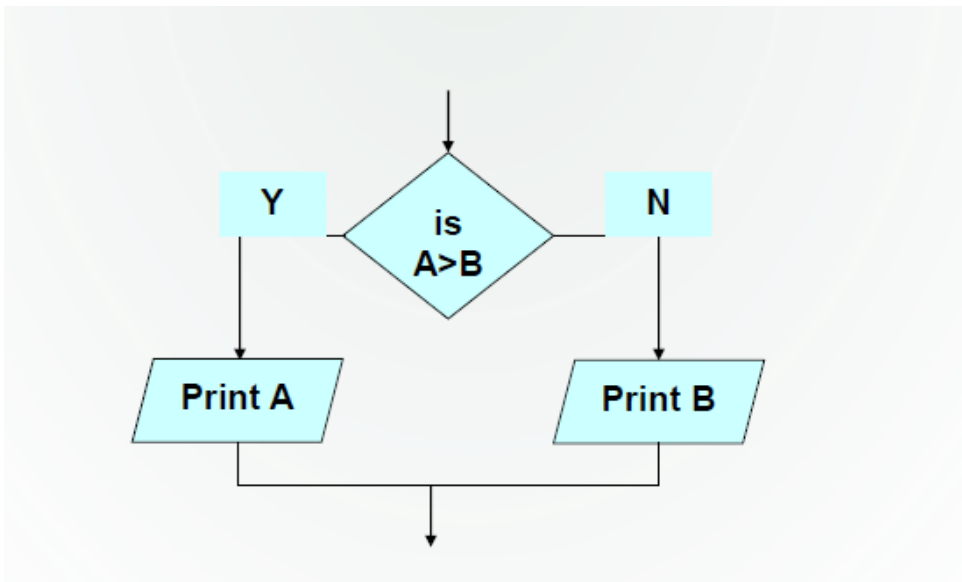
• Write an algorithm and draw a flowchart that will calculate the roots of a quadratic equation.

• Hint: $d = \sqrt{b^2 - 4ac}$, and the roots are: $x_1 = (-b + d)/2a$ and $x_2 = (-b - d)/2a$



DECISION STRUCTURES

- The expression $A > B$ is a logical expression
- it describes a **condition** we want to test*
- if $A > B$ is true (if A is greater than B) we take the action on left*
- print the value of A
- if $A > B$ is false (if A is not greater than B) we take the action on right*
- print the value of B



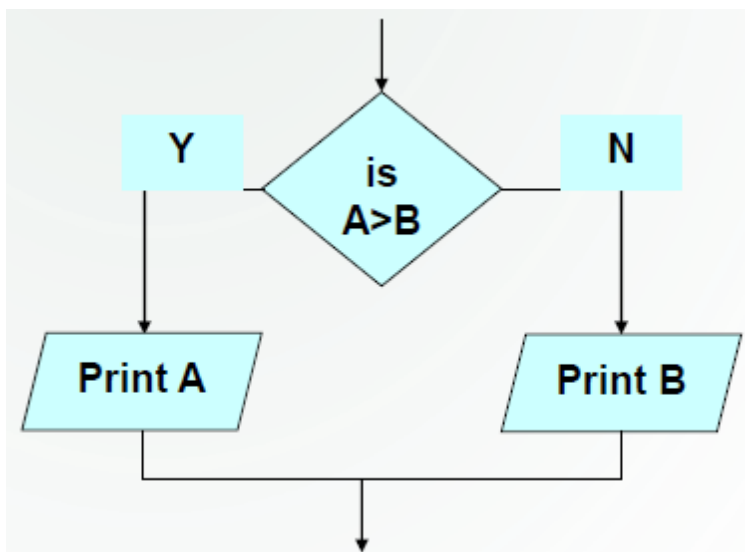
IF-THEN-ELSE STRUCTURE

- The structure is as follows

*If condition then
true alternative
else
false alternative
endif*

- The algorithm for the flowchart is as follows:

*If $A > B$ then
print A
else
print B
endif*



RELATIONAL OPERATORS

Relational Operators	
Operator	Description
>	Greater than
<	Less than
=	Equal to
≥	Greater than or equal to
≤	Less than or equal to
≠	Not equal to

EXAMPLE 5

•Write an algorithm that reads two values, determines the largest value and prints the largest value with an identifying message.

ALGORITHM

Step 1: *Input* VALUE1, VALUE2

Step 2: *if* (VALUE1 > VALUE2) *then*

MAX □ VALUE1

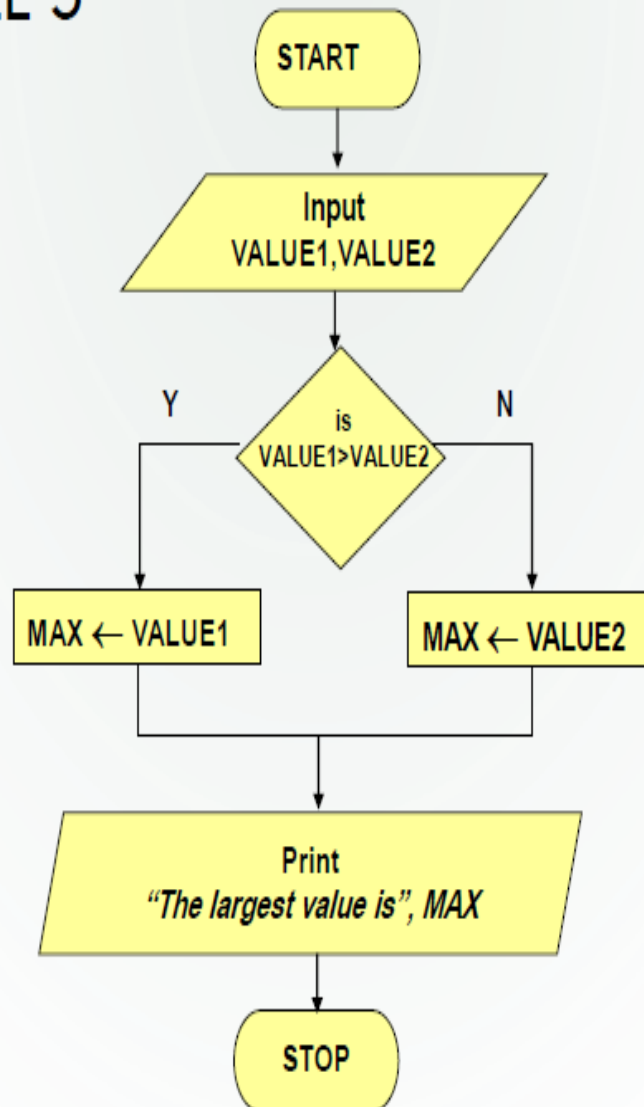
else

MAX □ VALUE2

endif

Step 3: *Print* “The largest value is”, MAX

EXAMPLE 5




NESTED IFS

- One of the alternatives within an IF–THEN–ELSE statement
- may involve furtherIF–THEN–ELSE statement

EXAMPLE 6

- Write an algorithm that reads **threenumbers** and prints the value of the largest number.



EXAMPLE 6

Step 1: *Input* **N1, N2, N3**

Step 2: *if* (**N1>N2**) *then*

if (**N1>N3**) *then*

MAX ← N1 [**N1>N2, N1>N3**]

else

MAX ← N3 [**N3>N1>N2**]

endif

else

if (**N2>N3**) *then*

MAX ← N2 [**N2>N1, N2>N3**]

else

MAX ← N3 [**N3>N2>N1**]

endif

endif

Step 3: *Print* “The largest number is”, **MAX**

Exercise:

•Flowchart: Draw the flowchart of the above Algorithm.