AP® Computer Science Principles

2026 EXAM REFERENCE INFORMATION

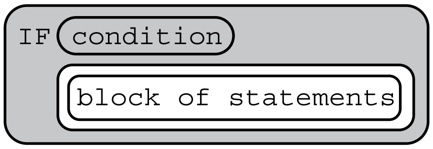
Name: ____

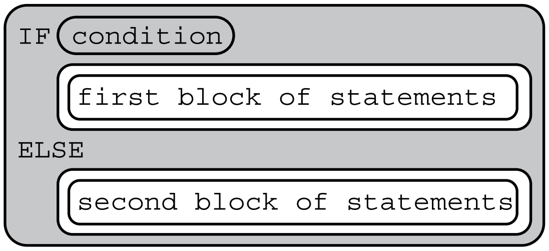
NOTE: You may use any blank space in this booklet for scratch work during the exam. **Proctors** should collect this reference information at the conclusion of the exam.

Exam Reference Sheet

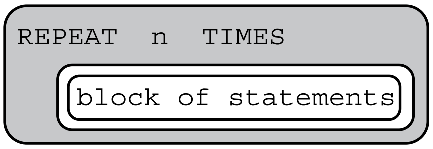
Instruction	Explanation
Assignment, Display, and Input	
Text: a ← expression Block: a ← expression	Evaluates expression and then assigns a copy of the result to the variable a.
Text: DISPLAY(expression) Block: DISPLAY expression	Displays the value of expression, followed by a space.
Text: INPUT() Block: INPUT	Accepts a value from the user and returns the input value.
Arithmetic Operators and Numeric Procedures	
Text and Block: a + b a - b a * b a / b	The arithmetic operators +, -, *, and / are used to perform arithmetic on a and b. For example, 17 / 5 evaluates to 3.4. The order of operations used in mathematics applies when evaluating expressions.
Text and Block: a MOD b	Evaluates to the remainder when a is divided by b. Assume that a is an integer greater than or equal to 0 and b is an integer greater than 0. For example, 17 MOD 5 evaluates to 2. The MOD operator has the same precedence as the * and / operators.
Text: RANDOM(a, b) Block: RANDOM a, b	Generates and returns a random integer from a to b, including a and b. Each result is equally likely to occur. For example, RANDOM(1, 3) could return 1, 2, or 3.
Relational and Boolean Operators	
Text and Block: a = b a ≠ b a > b a < b a ≥ b a ≤ b	The relational operators =, ≠, >, <, ≥, and ≤ are used to test the relationship between two variables, expressions, or values. A comparison using relational operators evaluates to a Boolean value. For example, a = b evaluates to true if a and b are equal; otherwise it evaluates to false.

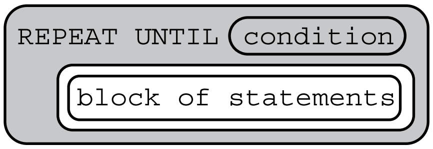
Instruction	Explanation
Relational and Boolean Operators (continued)	
Text: `NOT condition` Block: NOT (condition)	Evaluates to `true` if `condition` is `false`; otherwise evaluates to `false`.
Text: `condition1 AND condition2` Block: (condition1) AND (condition2)	Evaluates to `true` if both `condition1` and `condition2` are `true`; otherwise evaluates to `false`.
Text: `condition1 OR condition2` Block: (condition1) OR (condition2)	Evaluates to `true` if `condition1` is `true` or if `condition2` is `true` or if both `condition1` and `condition2` are `true`; otherwise evaluates to `false`.
Selection	

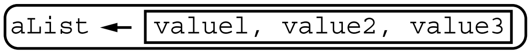
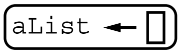
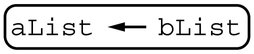
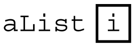
Text:
`IF(condition)`
`{`
`  <block of statements>`
`}`
Block:

	The code in `block of statements` is executed if the Boolean expression `condition` evaluates to `true`; no action is taken if `condition` evaluates to `false`.

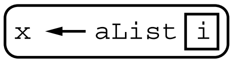
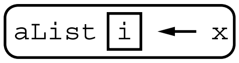
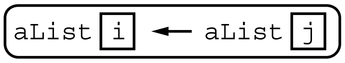
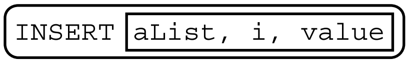
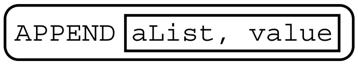
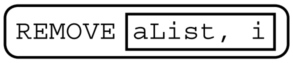
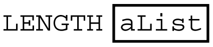
Text:
`IF(condition)`
`{`
`  <first block of statements>`
`}`
`ELSE`
`{`
`  <second block of statements>`
`}`
Block:
 IF
condition
first block of statements
ELSE
second block of statements
	The code in `first block of statements` is executed if the Boolean expression `condition` evaluates to `true`; otherwise the code in `second block of statements` is executed.

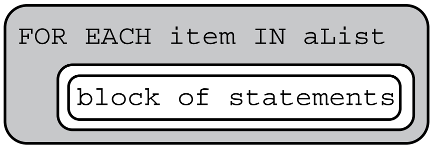
Instruction	Explanation
Iteration	

Text:
`REPEAT n TIMES`
`{`
`  <block of statements>`
`}`
Block:

	The code in `block of statements` is executed `n` times.

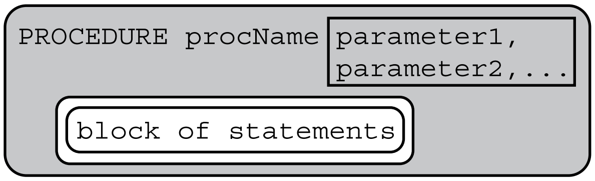
Text:
`REPEAT UNTIL(condition)`
`{`
`  <block of statements>`
`}`
Block:

	The code in `block of statements` is repeated until the Boolean expression `condition` evaluates to `true`.

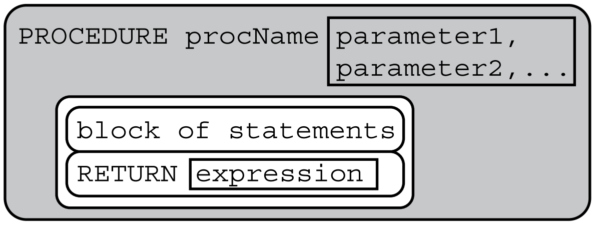
List Operations	
For all list operations, if a list index is less than 1 or greater than the length of the list, an error message is produced and the program terminates.	
Text: `aList ← [value1, value2, value3, ...]` Block: 	Creates a new list that contains the values `value1`, `value2`, `value3`, and `...` at indices `1`, `2`, `3`, and `...` respectively and assigns it to `aList`.
Text: `aList ← []` Block: 	Creates an empty list and assigns it to `aList`.
Text: `aList ← bList` Block: 	Assigns a copy of the list `bList` to the list `aList`. For example, if `bList` contains `[20, 40, 60]`, then `aList` will also contain `[20, 40, 60]` after the assignment.
Text: `aList[i]` Block: 	Accesses the element of `aList` at index `i`. The first element of `aList` is at index `1` and is accessed using the notation `aList[1]`.

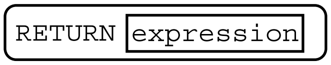
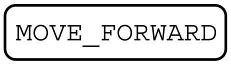
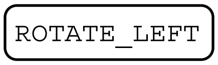
Instruction	Explanation
List Operations (continued)	
Text: `x ← aList[i]` Block: 	Assigns the value of `aList[i]` to the variable `x`.
Text: `aList[i] ← x` Block: 	Assigns the value of `x` to `aList[i]`.
Text: `aList[i] ← aList[j]` Block: 	Assigns the value of `aList[j]` to `aList[i]`.
Text: `INSERT(aList, i, value)` Block: 	Any values in `aList` at indices greater than or equal to `i` are shifted one position to the right. The length of the list is increased by 1, and `value` is placed at index `i` in `aList`.
Text: `APPEND(aList, value)` Block: 	The length of `aList` is increased by 1, and `value` is placed at the end of `aList`.
Text: `REMOVE(aList, i)` Block: 	Removes the item at index `i` in `aList` and shifts to the left any values at indices greater than `i`. The length of `aList` is decreased by 1.
Text: `LENGTH(aList)` Block: 	Evaluates to the number of elements in `aList`.

Text:
`FOR EACH item IN aList`
`{`
` <block of statements>`
`}`
Block:

	The variable `item` is assigned the value of each element of `aList` sequentially, in order, from the first element to the last element. The code in `block of statements` is executed once for each assignment of `item`.

Instruction	Explanation
Procedures and Procedure Calls	

Text:
PROCEDURE procName(parameter1,
                  parameter2, ...)
{
 <block of statements>
}
Block:
 PROCEDURE procName
parameter1, parameter2,...
block of statements
	Defines procName as a procedure that takes zero or more arguments. The procedure contains block of statements.
	The procedure procName can be called using the following notation, where arg1 is assigned to parameter1, arg2 is assigned to parameter2, etc.:
	procName(arg1, arg2, ...)

Text:
PROCEDURE procName(parameter1,
                  parameter2, ...)
{
 <block of statements>
 RETURN(expression)
}
Block:
 PROCEDURE procName
parameter1, parameter2,...
block of statements
RETURN
expression
	Defines procName as a procedure that takes zero or more arguments. The procedure contains block of statements and returns the value of expression. The RETURN statement may appear at any point inside the procedure and causes an immediate return from the procedure back to the calling statement.
	The value returned by the procedure procName can be assigned to the variable result using the following notation:
	result ← procName(arg1, arg2, ...)

Text: RETURN(expression) Block: 	Returns the flow of control to the point where the procedure was called and returns the value of expression.
Robot	
If the robot attempts to move to a square that is not open or is beyond the edge of the grid, the robot will stay in its current location and the program will terminate.	
Text: MOVE_FORWARD() Block: 	The robot moves one square forward in the direction it is facing.
Text: ROTATE_LEFT() Block: 	The robot rotates in place 90 degrees counterclockwise (i.e., makes an in-place left turn).

Instruction	Explanation
Robot	

Text:
`ROTATE_RIGHT()`
Block:
`ROTATE_RIGHT`
	The robot rotates in place 90 degrees clockwise (i.e., makes an in-place right turn).

Text:
`CAN_MOVE(direction)`
Block:
`CAN_MOVE` `direction`
	Evaluates to `true` if there is an open square one square in the direction relative to where the robot is facing; otherwise evaluates to `false`. The value of `direction` can be `left`, `right`, `forward`, or `backward`.