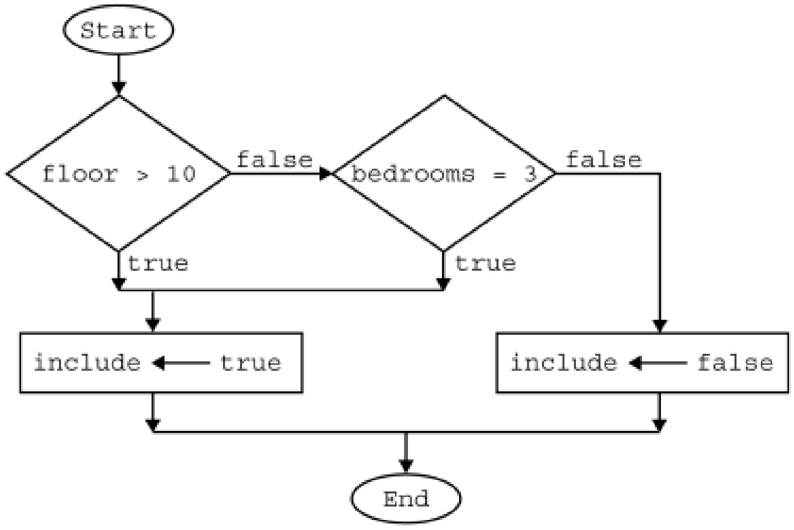
AP Computer Science Principles
Ticket Out the Door
Set 27: If Statements

Name ____ Period _____

Skill 27.01 Exercise 1

Block	Explanation
Oval ⬭	The start or end of the algorithm
Diamond ◇	A conditional or decision step, where execution proceeds to the side labeled `true` if the condition is true and to the side labeled `false` otherwise
Rectangle ▭	One or more processing steps, such as a statement that assigns a value to a variable



Which of the following statements is equivalent to the algorithm in the flowchart?

(A) `include ← (floor > 10) OR (bedrooms = 3)`

(B) `include ← (floor > 10) AND (bedrooms = 3)`

(C) `include ← (floor ≤ 10) OR (bedrooms = 3)`

(D) `include ← (floor ≤ 10) AND (bedrooms = 3)`

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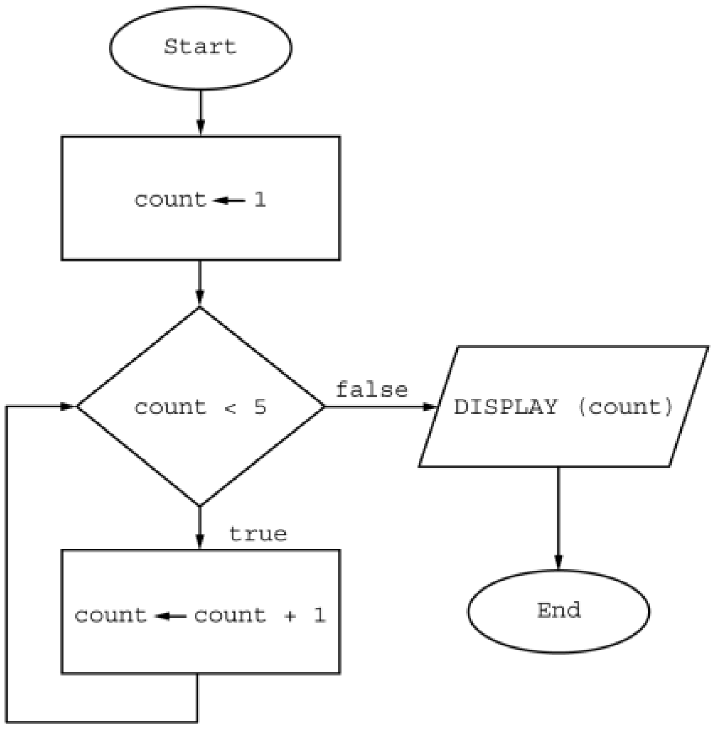
Skill 27.01 Exercise 2

Block	Explanation
Oval ⬭	The start or end of the algorithm
Rectangle ▭	One or more processing steps, such as a statement that assigns a value to a variable
Diamond ◇	A conditional or decision step, where execution proceeds to the side labeled `true` if the condition is true and to the side labeled `false` otherwise
Parallelogram ▱	Displays a message



What is displayed as a result of executing the algorithm in the flowchart?

(A) 5

(B) 15

(C) 1 2 3 4

(D) 1 2 3 4 5

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Skill 27.01 Exercise 3
Central High School keeps a database of information about each student, including the numeric variables `numberOfAbsences` and `gradePointAverage`. The expression below is used to determine whether a student is eligible to receive an academic award. `(numberOfAbsences ≤ 5) AND (gradePointAverage > 3.5 )` Draw a flowchart to represent the statement above. If the conditions above are met, the variable *academicAward* is true, otherwise it is false.

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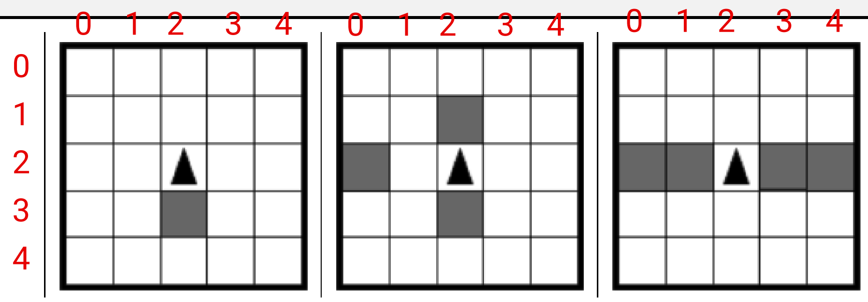
Skill 27.02 Exercises 1 thru 3

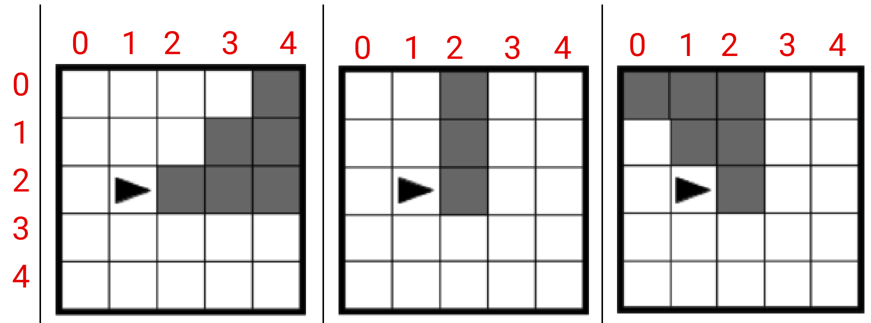
Basic If-Statements

```
ROTATE_LEFT ()
IF (CAN_MOVE (left))
{
   ROTATE_LEFT ()
}
MOVE_FORWARD ()
MOVE_FORWARD ()
```

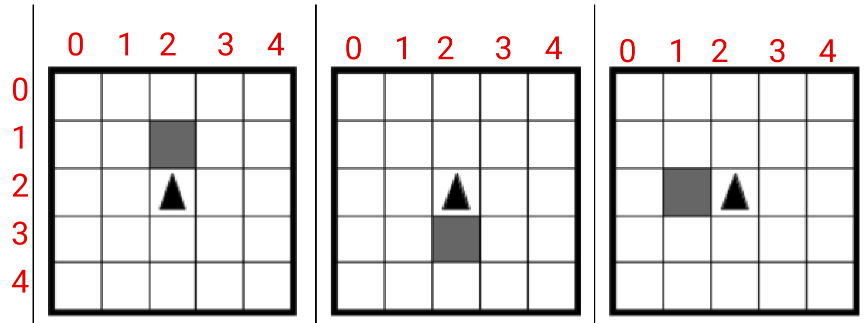


Sequential If-Statements

```
ROTATE_LEFT ()
IF (CAN_MOVE (forward))
{
   MOVE_FORWARD ()
}
ROTATE_RIGHT ()
IF (CAN_MOVE (forward))
{
   MOVE_FORWARD ()
}
ROTATE_LEFT ()
IF (CAN_MOVE (forward))
{
   MOVE_FORWARD ()
}
```



```
IF (CAN_MOVE ( left ))
{
   ROTATE_LEFT ()
   MOVE_FORWARD ()
}
IF (CAN_MOVE ( left ))
{
   ROTATE_LEFT ()
   MOVE_FORWARD ()
}
IF (CAN_MOVE ( left ))
{
   ROTATE_LEFT ()
   MOVE_FORWARD ()
}
```



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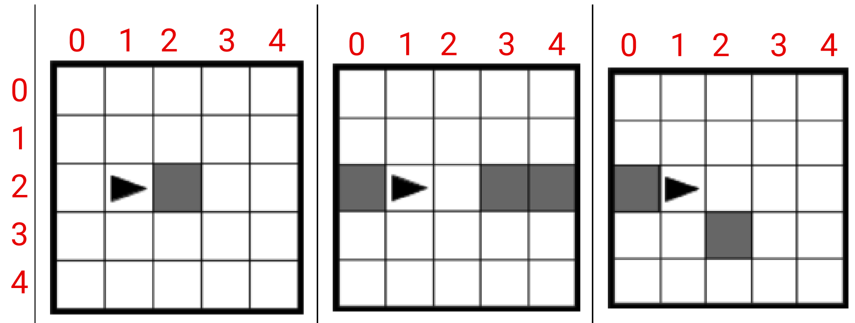
Nested If-Statement

```
IF (CAN_MOVE (forward))
{
   MOVE_FORWARD ()
   IF (CAN_MOVE (left))
   {
      ROTATE_LEFT ()
      IF (CAN_MOVE (right))
      {
         ROTATE_RIGHT()
      }
   }
}
MOVE_FORWARD ()
```



Skill 27.03 Exercise 1

Declare a variable named sale. Assign the value true to it.
Now create an if statement. Provide the if statement a condition of sale. Inside the code block of the if statement, console.log() the string 'Time to buy!'.

Consider the block of code below,

- Re-write the code and add an if-statement to the code to check the age to see if the person is old enough to drive. (In most states you need to be 16 or older).
- Display a message if the person is old enough drive.

```
console.log("Driver Verification");
var age = prompt("Please enter your age");
console.log("It looks like you are old enough!");
```

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Skill 27.04 Exercise 1

Consider the following students and their corresponding gpa's. Notice their rank is out of order! Write a program that puts the students in the correct order. The gpa and rank of each student can be accessed using the following syntax: Bart.gpa, Bart.rank

	gpa	**rank**
var Bart	3.5	1
var Bugs	3.8	3
var Kyle	3.1	2