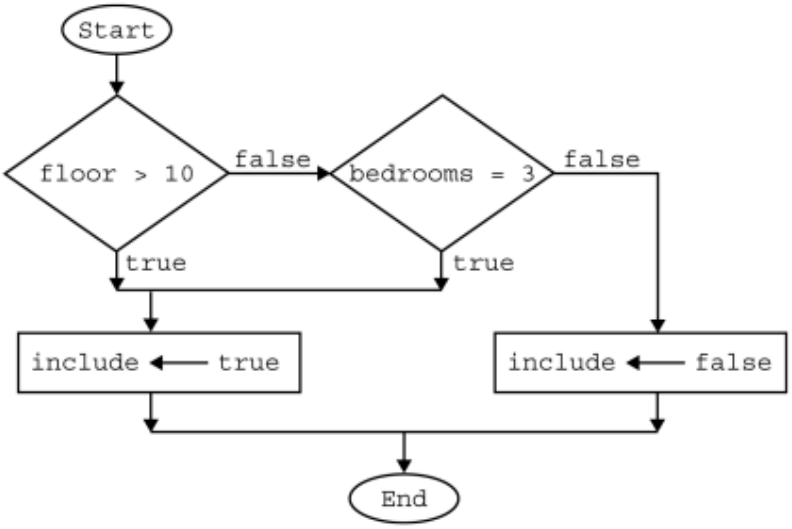
AP Computer Science Principles
Ticket Out the Door
Set 27: If Statements

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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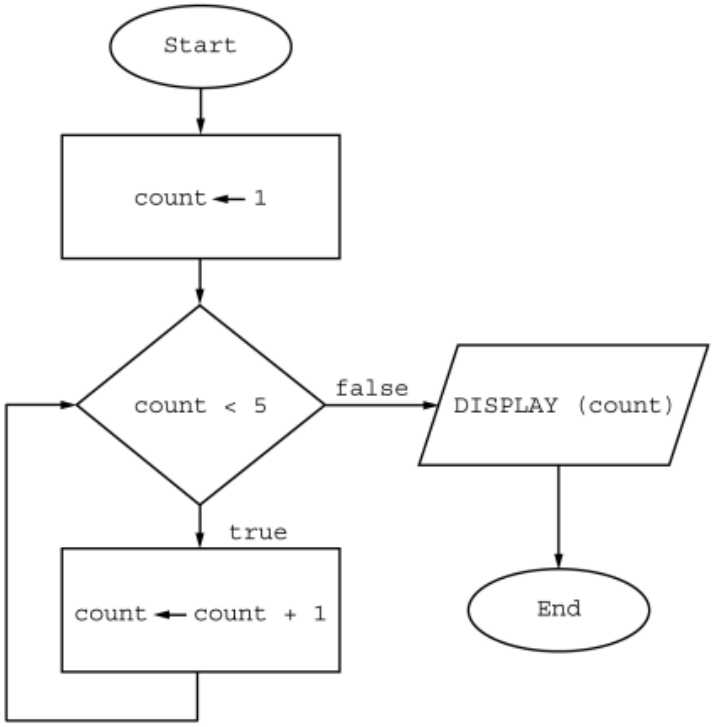
Skill 27.01 Exercise 2

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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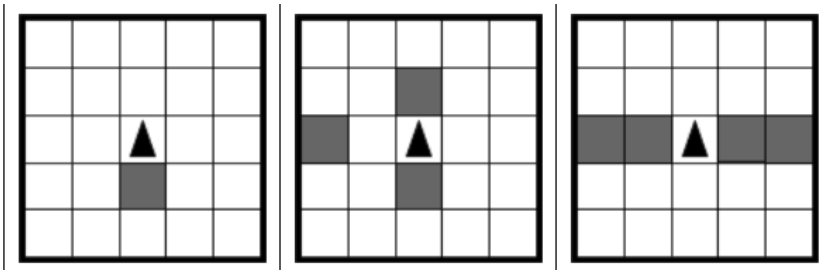
Skill 27.02 Exercises 1 thru 3

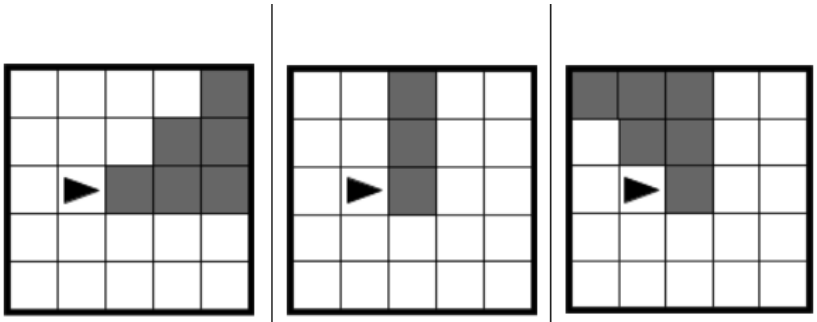
Basic If-Statements

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

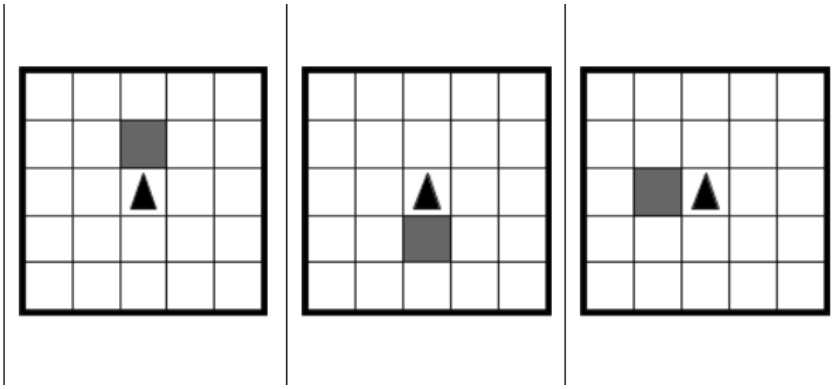


Sequential If-Statements

```
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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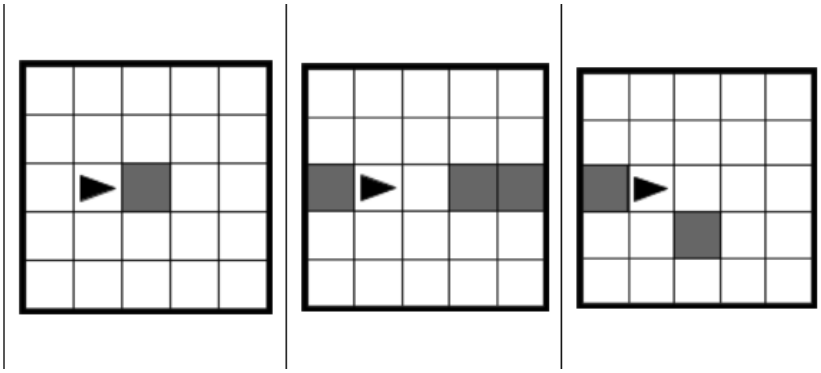
Nested If-Statement

```
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 rankings and the corresponding gpa's. Notice the ranking is out of order! Write a program that assigns the correct person to the correct rank. Note, you can access the name and gpa of each rank with the following notation, rank1.gpa, rank1.name. For example, rank1.gpa has a value of 4.15, and rank1.name has a value of Bugs.

	name	gpa
rank1	Bugs	4.15
rank2	Bart	4.30