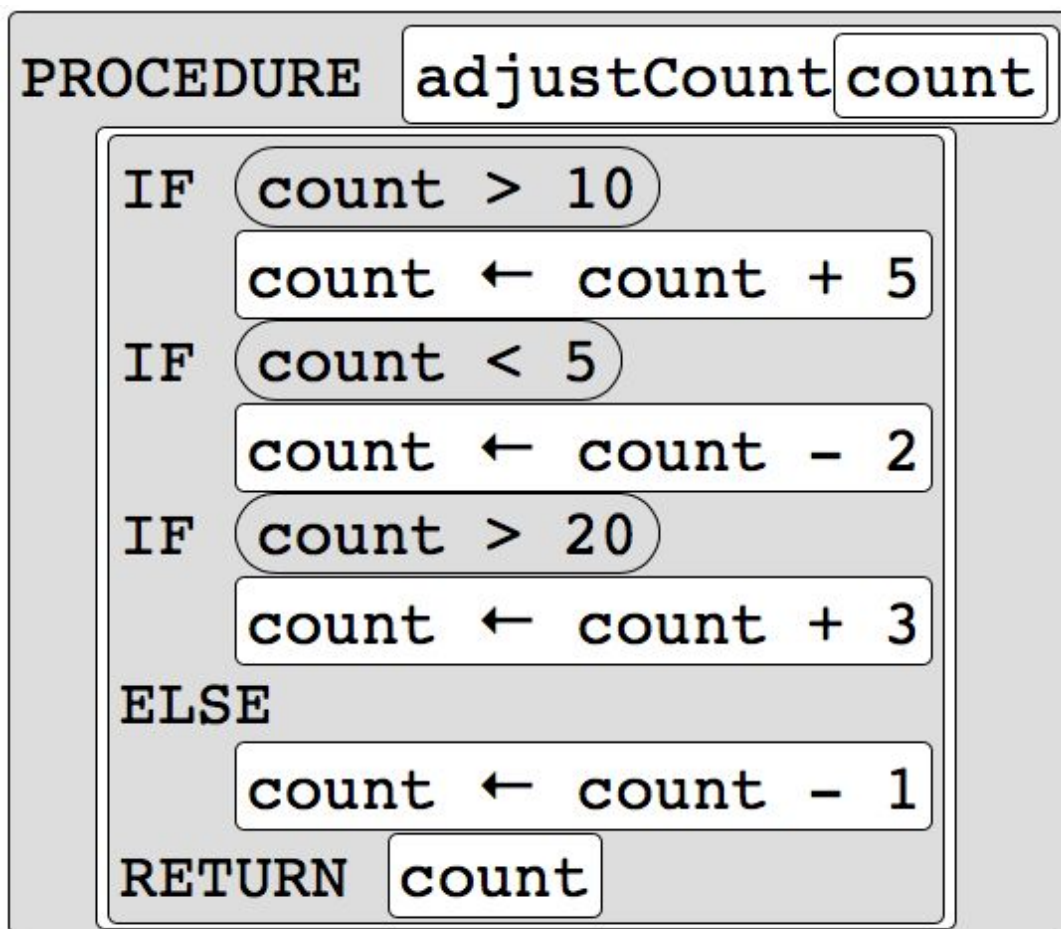1. A Computer Graphics Programmer wanted to develop a brochure consisting of predominantly blue color. Which of the following RGB triplets would he be choosing?

    (A) #FF0000
    (B) (C8,B4,78)
    (C) (255,255,255)
    (D) #170F4C

2. Given the following procedure:

```
PROCEDURE adjustCount count
    IF (count > 10)
        count ← count + 5
    IF (count < 5)
        count ← count - 2
    IF (count > 20)
        count ← count + 3
    ELSE
        count ← count - 1
    RETURN count
```

What will be output when the following statement is executed?
DISPLAY (adjustCount(9) + adjustCount(16))
    (A) 28
    (B) 32
    (C) 33

(D) 35

3. Which of the following blocks of code are examples of iteration?
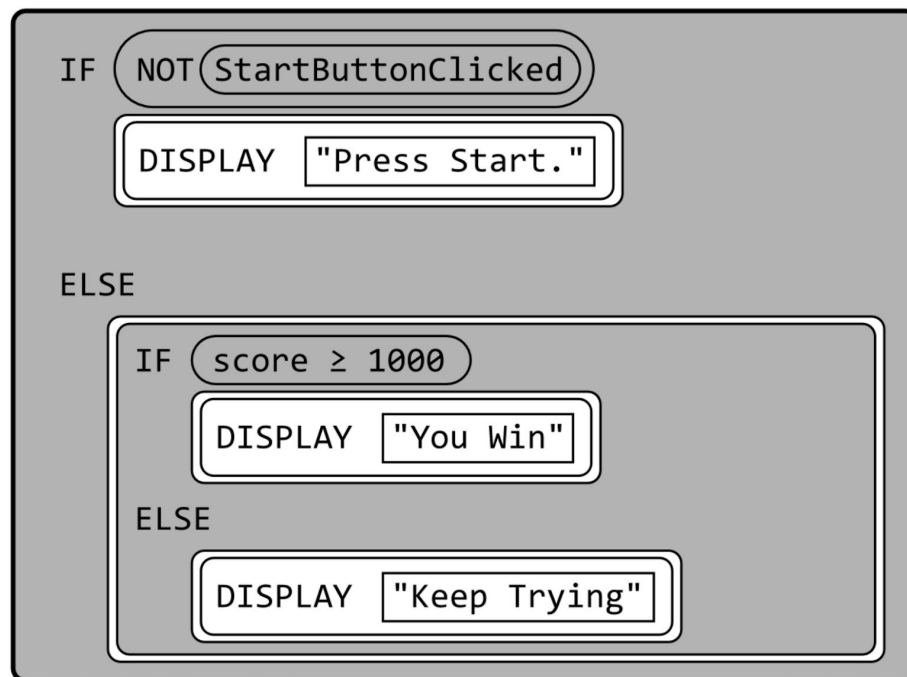
Select TWO answers.

(A) a ← RANDOM (1, 100)
    IF (a < 50)
    {
            DISPLAY ("you win!")
    }
    ELSE
    {
            DISPLAY ("you loose!")
    }

(B) a ← RANDOM (1, 100)
    REPEAT 5 TIMES
    {
            a ← a * RANDOM(1, 100)
    }
    DISPLAY (a)

(C) a ← 50
    WHILE a < 500
    {
            a ← a + 1
            DISPLAY (a)
            a ← RANDOM (1, 750)
    }

(D) a ← RANDOM (1, 100)
   IF (a > 10)
    {
            DISPLAY("you win!")
    }

4. Use the code to answer the question.

```
IF ( NOT ( StartButtonClicked ) )

        DISPLAY  "Press Start."


ELSE

        IF ( score ≥ 1000 )

                DISPLAY  "You Win"

        ELSE

                DISPLAY  "Keep Trying"
```

If startButtonClicked is false and score = 1000, what is displayed after the code is run?

(A) Press Start.
(B) You Win
(C) Keep Trying
(D) Press Start.You Win

5. What will be output when the following code is executed?

```
IF ( 9 < 0 ) and ( 0 < -9 )
    DISPLAY "hello"
ELSE
    DISPLAY "good"
ELSE
    DISPLAY "bad"
```
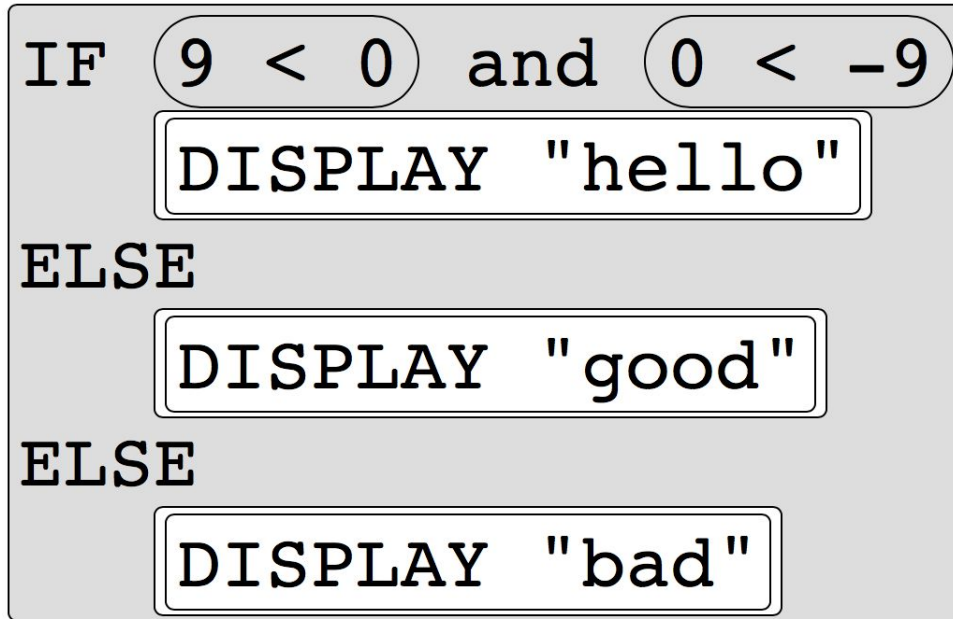
(A) The program will throw an error
(B) hello
(C) good
(D) Bad

6. A programmer uses two variables: baseNum which is the base number used in the calculation, and numLoops which is the number of times the loop will be repeated. The table lists the state of each variable after the program completes each pass.In this example, the starting value of baseNum is 2 and numLoops is 3.

pass	baseNum	numLoops	num	i
before looping	2	3	2	1
1st	2	3	5	2
2nd	2	3	13	3
3rd	2	3	30	4

Consider the following code segment:

baseNum ← 2

```
numLoops ← 3
num ← baseNum
i ← 1

REPEAT numLoops TIMES
{
        //Insert code here
}
```
Which of the following code segments could be inserted into the code above so that the state of the variables match the table?

(A) ```
pow ← baseNum
REPEAT (i - 1) TIMES
{
        pow ← pow * baseNum
}
num ← num + pow
i ← i + 1
```

(B) ```
pow ← baseNum * baseNum
num ← num + pow
i ← i + 1
```

(C) ```
pow ← baseNum
REPEAT (i - 1) TIMES
{
        pow ← pow * baseNum
}
num ← num + pow + i
i ← i + 1
```

(D) ```
pow ← baseNum
REPEAT (i - 1) TIMES
{
        pow ← pow * baseNum
}
num ← num + pow + ( i * 1)
i ← i + 1
```

7. Which of the following segments of code, extracted from separate algorithms, use **BOTH** iteration and selection?

Select TWO answers.

(A)
```
IF  (i < 10)  and  (nums i  >=50)
       DISPLAY  nums i
       count←  count +1
```

(B)
```
IF  (teamName = targetTeam)
       FOR EACH name IN players
              DISPLAY  name
```
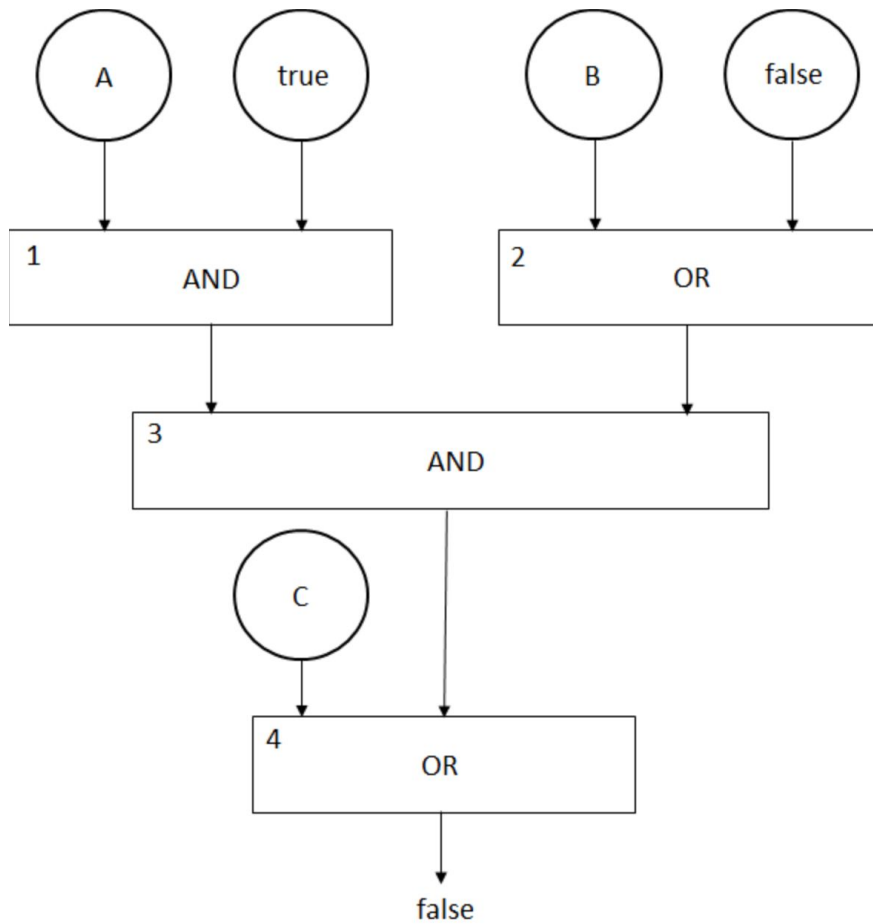
(C)
```
num ←  2000
REPEAT UNTIL (num < 0)
       IF (num MOD 7 = 0)
              DISPLAY  num
       num ←  num −1
```

(D)

```
FOR EACH salary IN salaries
    bonus = 0
    REPEAT 2 TIMES
        bonus = bonus + salary * .05
    DISPLAY bonus
```

8. The figure below shows a circuit composed of four logic gates, labeled 1 through 4. The final output of the circuit is false. Which of the following values for inputs A, B and C would cause the output to be false?

(A) A ← false, B ← true, C ← true
(B) A ← true, B ← true, C ← false
(C) A ← true, B ← false, C ← true
(D) A ← false, B ← true, C ← false

9. A Programmer wrote the following program intending to print the maximum value of the list. You can assume that the list has at least one element in it. Which one of the following is true?

Line 1: max ← 0
Line 2: FOR EACH num IN list
Line 3: {
Line 4:   IF(num > max)

Line 5:   {
Line 6:   max ← num
Line 7:   }
Line 8: }
Line 9: DISPLAY(max)

(A) No change. This code works.
(B) Change Line 6 to num ← max
(C) Change Line 1 to max ← list[1]
(D) Change Line 4 to IF (num >= max)

10. We want to create an algorithm called swapValues. Given two variables x and y the result should have the values of x and y swapped. Which of the following correctly swaps the values of x and y?

(A)

```
y ← x
temp ← x
x ← y
```

(B)

```
x ← y
y ← x
```

(C)

temp ← x

y ← temp

y ← x

(D)

temp ← x

x ← y

y ← temp