

## JBS Programming Bootcamp

### Tutorial 3 — Writing Algorithm Fragments

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Algorithms and Problem-Solving

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#### Section A: Introduction.

1. Write an algorithm fragment to display every number from 35 to 155.  
Hint: Use a FOR loop for this.

2. Determine the output of the following algorithm.

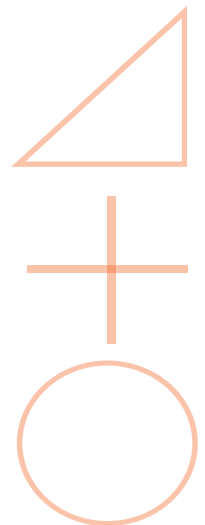
```
FOR k = 3 TO 13 STEP 4  
  DISPLAY k - 1  
END FOR
```

3. Evaluate the following Boolean expression and algorithm fragment (show workings):

(a) (TRUE OR TRUE) AND NOT (FALSE OR FALSE) AND (FALSE OR TRUE) =?

(b) 

```
grit = TRUE  
regular = NOT(grit)  
IF (regular = FALSE) THEN  
  grit = NOT (regular)  
ELSE  
  DISPLAY "LET'S GO!"  
END IF  
DISPLAY grit  
DISPLAY "BOOM!"
```



4. In a Country called Wakanda, the age of enrolment into the military is 18, but the alcohol drinking age is 21. Write an algorithm fragment that determines if a person in Wakanda can be enrolled in the military and if they can have a beer

## Section B: Writing Full Algorithm and Evaluating Fragments

- 1 What is the output of this fragment?

```
check = FALSE
x = 30
y = 10
WHILE ((x < 31) OR (check = TRUE))
    x = x + 3
    DISPLAY x, NOT(check)
    x = x - y
END WHILE
DISPLAY "Two swords no shield"
```

- 2 Write an algorithm that reads in two numbers and displays all the squares in the range. For example, if the two numbers are 4 and 6, it should display:

```
16
25
36
```

- 3 Use a While loop that reads N, and displays N-lines of the following sequence.

2	8	2
4	16	10
6	24	18
8	32	26

For example, if the user entered 3, they should see the sequence:

2	8	2
4	16	10
6	24	18

- 4 Write an algorithm that reads in three Boolean values, and displays "GREAT", if ANY TWO of the three values are TRUE.

