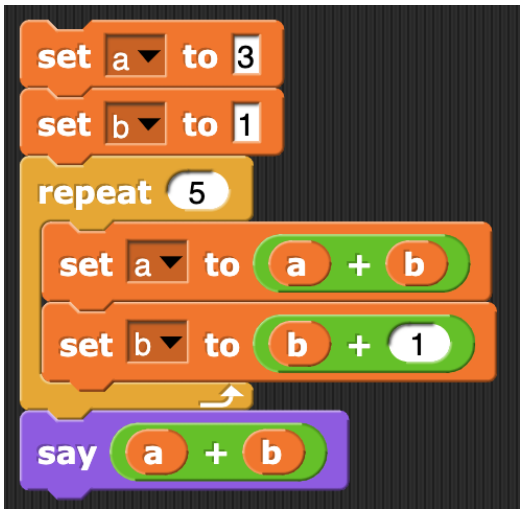
Trace Tables & Pseudocode - SOLUTIONS

1. Here is an algorithm written in Snap; assume **a** and **b** are global variables.



a. Complete the trace table to help you determine what the sprite will say at the end.

Iteration	a	b
0	3	1
1	4	2
2	6	3
3	9	4
4	13	5
5	18	6

b. What will the sprite say?

24 (18+6)

2. Here is an algorithm written in AP exam pseudocode:

```
num ← 10
output ← 5
REPEAT UNTIL num < 0
    IF num > output
        output ← output + num
    ELSE
        output ← output - num
    num ← num - 2
DISPLAY output
```

Complete the trace table to help you determine what will be displayed when this algorithm is executed:

num	output	
10	5	
8	15	
6	7	
4	1	
2	5	
0	3	
-2	**3**	

What gets displayed?

3

3. Here is an algorithm written in AP exam pseudocode:

```
numList ← [8, 7, 9, 5]
len ← LENGTH(numList)
count ← 1
sum ← 0

REPEAT len TIMES
{
  sum ← sum + numList[count]
  count ← count + 1
}

DISPLAY(sum + count)
```

Complete the trace table to help you determine what will be displayed when this algorithm is executed (make sure to identify what variables (or lists!) you're keeping track of):

numList	len	count	sum	Iteration #
[8, 7, 9, 5]	4	1	0	
		2	8	1
		3	15	2
		4	24	3
		5	**29**	4

What gets displayed?

34 (29 + 5)