

Trace Tables

```
num = 5
count = 0
while num < 100:
    num = num + 10
    count = count + 1
print(count)
```

1. Complete the **trace table** showing how the values of num and count change during the execution of this algorithm. You may not need all the rows.
2. What will be the final value of count?

Iteration	num	count
0	5	0
1		
2		

Code breaking using trace tables

A fab activity to practice trace tables:

<https://www.101computing.net/code-breaking-using-trace-tables/>

ANSWERS

```
num = 5
count = 0
while num < 100:
    num = num + 10
    count = count + 1
print(count)
```

Iteration	num	count
0	5	0
1	15	1
2	25	2
3	35	3
4	45	4
5	55	5
6	65	6
7	75	7
8	85	8
9	95	9
10	105	10

Explanation:

The loop starts with $\text{num} = 5$ and $\text{count} = 0$.

In each iteration:

num is incremented by 10 ($\text{num} = \text{num} + 10$).

count is incremented by 1 ($\text{count} = \text{count} + 1$).

The loop continues as long as num is less than 100.

The loop terminates when num becomes 105 (after 11 iterations). However, the condition ($\text{num} < 100$) is checked before each iteration, so the 11th iteration with $\text{num} = 105$ is not included in the final output ($\text{print}(\text{count})$).

Therefore, the final value of count is 10.