

LOOP CONDITIONAL STATEMENTS

ASSIGNMENT

Evaluating Loop Expressions:

For each program, summarize each iteration of the loop and record changes to the variables inside the loop:

Example:

```
int i=0;
while (i + 3 > 2 * i) {
    i = i + 1;
}
```

Code	1 st Iteration	2 nd Iteration	3 rd Iteration	4 th Iteration
while (i + 3 > 2 * i) {	(0+3 > 2*0) -> (3 > 0) -> (true)	(1+3 > 2*1) -> (4 > 2) -> (true)	(2+3 > 2*2) -> (5 > 4) -> (true)	(3+3 > 2*3) -> (6 > 6) -> (false)
i = i + 1;	i = 0 + 1 -> i = 1	i = 1 + 1 -> i = 2	i = 2 + 1 -> i = 3	Skipped

Loop Problem #1:

```
int i=5;
int j=1;
while (i > j) {
    i = i - 1;
    j = j + 1;
}
```

Code	1 st Iteration	2 nd Iteration	3 rd Iteration	4 th Iteration	5 th Iteration	6 th Iteration	7 th Iteration
while (i > j) {							
i = i - 1;							
j = j + 1;							

Loop Problem #2:

```
int x=1;
while (x < 16) {
    x = x * 2;
}
```

Code	1 st Iteration	2 nd Iteration	3 rd Iteration	4 th Iteration	5 th Iteration	6 th Iteration	7 th Iteration
while (x < 16) {							
x = x * 2;							

Loop Problem #3:

```
int i=10;
boolean b=true;
while (i > 0 && b) {
    i = i - 1;
    if (i==8) {
        b = false;
    }
}
```

Code	1 st Iteration	2 nd Iteration	3 rd Iteration
while (i > 0 && b) {			
i = i - 1;			
if (i==8) {			
b = false;			
}			

Loop Problem #4:

```
int a=1;
int b=32;
while (b - a > 0) {
    a = a * 2;
    b = b / 2;
}
```

Code	1 st Iteration	2 nd Iteration	3 rd Iteration	4 th Iteration
while (b - a > 0)				
{				
a = a * 2;				
b = b / 2;				

Loop Problem #5:

```
int y=5;
int z=4;
while (y * z < 3 * y + z) {
    y = y * z + z;
    z = y * z;
}
```

Code	1 st Iteration	2 nd Iteration	3 rd Iteration	4 th Iteration
while (y * z < 3 * y + z) {				
y = y * z + z;				
z = y * z;				