

Quiz 2 Practice Questions

Instruction Counting Worksheet

Problem 1: Count Powers of Two Less Than n

```
1: x = 1
2: count = 0
3: while x < n:
4:     x = x * 2
5:     count += 1
```

Line #	Time per execution	# Executions	Total time for line
1			
2			
3			
4			
5			
Total T(n)			

Problem 2: Nested Addition of Indexes

```
1: i = 0
2: total = 0
3: while i < n:
4:     j = 0
5:     while j < n:
6:         total += i + j
7:         j += 1
8:     i += 1
```

Line #	Time per execution	# Executions	Total time for line
1			
2			
3			
4			
5			
6			
7			
8			
Total T(n)			

Problem 3: Decrementing Counter Loop

```

1: x = n
2: total = 0
3: while x > 0:
4:     total += x
5:     x = x // 2

```

Line #	Time per execution	# Executions	Total time for line
1			
2			
3			
4			
5			
Total T(n)			

Problem 4: Nested While Index Product

```

1: i = 0
2: total = 0
3: while i < n:
4:     j = 0
5:     while j < i:
6:         total += i * j
7:         j += 1
8:     i += 1

```

Line #	Time per execution	# Executions	Total time for line
1			
2			
3			
4			
5			
6			
7			
8			
Total T(n)			

Problem 5: While Loop with Early Exit

```

1: i = 0
2: while i < len(A):
3:     if A[i] < 0:
4:         break
5:     i += 1

```

Line #	Time per execution	# Executions	Total time for line
1			
2			
3			
4			
5			
Total T(n)			