

# Worksheet #28: Liveness Guarantees

---

Name: \_\_\_\_\_

Netid: \_\_\_\_\_

```
1.      /** Atomically adds delta to the current value.
2.      *
3.      * @param delta the value to add
4.      * @return the previous value
5.      */
6.      public final int getAndAdd(int delta) {
7.          for (;;) {
8.              int current = get();
9.              int next = current + delta;
10.             if (compareAndSet(current, next))
11.                 // commit
12.                 return current;
13.             }
```

**Assume that multiple tasks call `getAndAdd()` repeatedly in parallel. Can this implementation of `getAndAdd()` lead to a) deadlock, b) livelock, c) starvation, or d) unbounded wait? Write and explain your answer below**

