

I spent 30 min on this assignment.

```
OK //a)
    //@ assert 2*y + 3 == 13;
x = 2*y + 3;
    //@ assert x == 13;
```

```
//b
```

```
OK    //@ assert x + y < 2*y;
x' = x + y;
    //@ assert x' < 2*y;
```

```
//c
OK    //@ assert j + 1 > 0;
j' = j + 1;
    //@ assert j' > 0;
```

```
//d
OK    //@ assert i + 1 <= n;
i' = i + 1;
    //@ assert i' <= n;
```

```
//e
OK    //@ assert a - b > b;
a' = a - b;
    //@ assert a' > b;
```

```
OK //f
    //@ assert (z - 3) * z > 0;
x = z - 3;
    //@ assert x * z > 0;
y = x * z;
    //@ assert y > 0;
```

```
OK //g
    //@ assert ((a > b) ==> (a - b > 0 && b > 0)) && ((a <=
    //@ b) ==> (a > 0 && b - a > 0));
if (a > b) {
    //@assert a > b;
    //@assert a - b > 0 && b > 0;
    a = a - b;
    //@ assert a > 0 && b > 0;
} else {
    //@assert a <= b;
    //@assert a > 0 && b - a > 0;
    b = b - a;
    //@ assert a > 0 && b > 0;
}
    //@ assert a > 0 && b > 0;
```

```
//h
```

```
    //@ assert true;    (-10) Incorrect
if (i > 0) {            weakest precondition
    //@ assert true && i > 0;
    //@ assert i == Math.abs(i);
    a = i;
    //@ assert a == Math.abs(i);
}
    //@ assert a == Math.abs(i);
```