

# Part 3 | Final Exam | 6.005.1x Courseware

III [openlearninglibrary.mit.edu/courses/course-v1:MITx+6.005.1x+3T2016/courseware/Week\\_12/exam](https://openlearninglibrary.mit.edu/courses/course-v1:MITx+6.005.1x+3T2016/courseware/Week_12/exam)

1. Course, current location
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## Part 3

### Preconditions

0.0/4.0 points (graded)

Alice writes the following code:

```
public static int gcd(int a, int b) {  
    if (a > b) {  
        return gcd(a-b, b);  
    } else if (b > a) {  
        return gcd(a, b-a);  
    }  
    return a;  
}
```

Bob writes the following test:

```
@Test public void gcdTest() {  
    assertEquals(6, gcd(24, 54));  
}
```

The test passes!

Alice should write `a > 0` in the precondition comment of `gcd`

unanswered

Alice should write `b > 0` in the precondition comment of `gcd`

unanswered

Alice should write `gcd(a, b) > 0` in the precondition comment of `gcd`

unanswered

Alice should write `a and b are integers` in the precondition comment of `gcd`

unanswered

Some problems have options such as save, reset, hints, or show answer. These options follow the Submit button.

## Valid Test Cases

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0.0/3.0 points (graded)

Given this specification:

```
static int find(int[] arr, int val)
  requires: arr[0] == val
  effects:  returns index i such that arr[i] == val
```

Which are valid test cases for `find`?

unanswered

Some problems have options such as save, reset, hints, or show answer. These options follow the Submit button.

## Contracts

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0.0/3.0 points (graded)

Consider this spec:

```
static int find(int[] arr, int val)
  requires: val occurs exactly once in arr
  effects:  returns index i such that arr[i] = val
```

As the implementer of `find`, which are legal? Check all that apply.

unanswered

Some problems have options such as save, reset, hints, or show answer. These options follow the Submit button.

## Spec Strength

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0.0/4.0 points (graded)

Assuming everybody follows the spec, what can an implementor do, without looking at or changing any clients?

unanswered

Assuming everybody follows the spec, what can a single client do, without looking at or changing the implementation or any other clients?

unanswered

Some problems have options such as save, reset, hints, or show answer. These options follow the Submit button.

### **Stronger and Weaker**

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0.0/3.0 points (graded)

Which of the following can be true about a pair of specifications  $A$  and  $B$ ? Check all that apply.

unanswered

Some problems have options such as save, reset, hints, or show answer. These options follow the Submit button.