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Questions

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get in here

1/1 point (graded)

Which of the following are part of a function's specification? Check all that apply.


- ☒ 1. return type
- ☒ 2. restrictions on return values
- ☒ 3. number of arguments
- ☒ 4. argument types
- ☒ 5. restrictions on argument values



Explanation

1, 3, and 4 are statically checked by Java; 2 and 5 are usually not.
1 and 2 are postconditions; 3 through 5 are preconditions.

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greatest common denominator

4/4 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 of `gcd`

- ☒ True
- ☐ False



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

☒ True

☐ False



Alice should write $\text{gcd}(a, b) > 0$ in the precondition of `gcd`

☐ True

☒ False



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

☐ True

☒ False



Explanation

The function required $a > 0$ and $b > 0$ in order to return a correct answer.

$\text{gcd}(a, b) > 0$ is not a precondition, it would be a postcondition.

The compiler already checks that `a` and `b` are integers, so writing it again would be duplicative.

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gcd, cont'd

2/2 points (graded)

If Alice adds $a > 0$ to the precondition, Bob should test negative values of `a`

☐ True

☒ False



If Alice does not add $a > 0$ to the precondition, Bob should test negative values of `a`

☒ True

☐ False



Explanation

Bob should not test inputs that violate the precondition. But without the precondition, a reasonable partitioning of input `a` would certainly include negative values.

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