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Questions

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any second now

1/1 point (graded)

Consider this ADT:

```
public class Duration {
    private final int mins;
    private final int secs;
    // rep invariant:
    //    mins >= 0, secs >= 0
    // abstraction function:
    //    represents a span of time of mins minutes and secs seconds

    /** Make a duration lasting for m minutes and s seconds. */
    public Duration(int m, int s) {
        mins = m; secs = s;
    }
    /** @return length of this duration in seconds */
    public long getLength() {
        return mins*60 + secs;
    }
}
```

and these objects created from it:

```
Duration d1 = new Duration (1, 2);
Duration d2 = new Duration (1, 3);
Duration d3 = new Duration (0, 62);
Duration d4 = new Duration (1, 2);
```

Using the abstraction-function notion of equality, which of the following would be considered equal to `d1` ? Check all that apply.

- ☑ d1
- ☐ d2
- ☑ d3
- ☑ d4

✔

Explanation
The abstraction function maps `d1` , `d3` , and `d4` to the same span of time (62 seconds), but it maps `d2` to a different span of time (63 seconds).

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eye on the clock

1/1 point (graded)

Using the observational notion of equality, which of the following would be considered equal to `d1` ? Check all that apply.

- ☑ d1
- ☐ d2
- ☑ d3
- ☑ d4

✔

Explanation
The only operation that the `Duration` ADT offers is `length()` , and `d1` , `d3` , and `d4` all return the same result (62 seconds), but `d2` is distinguishable from `d1` using the `length()` operation, so it would not be equal to the others under an observational interpretation of equality.

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