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## Questions 8-10

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### Question 8

1/1 point (graded)

Consider the following function

```
;; (listof Number) -> Boolean
;; produce true if all numbers in lon are positive
(check-expect (all-positive? empty) true)
(check-expect (all-positive? (list 1 2)) true)
(check-expect (all-positive? (list 1 2 -3)) false)

(define (all-positive? lon)
  (cond [(empty? lon) true]
        [else
         (and (positive? (first lon))
              (all-positive? (rest lon)))]))
```

Is `and` in tail position?

☒ yes

☐ no



**Explanation**  
The primitive `and` is in tail position because its result will be the result of the enclosing function.

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### Question 9

1/1 point (graded)

Is `positive?` in tail position?

☐ yes

☒ no



**Explanation**  
No, because its result needs to be operated on by `and` first. If the call to `positive?` produces `true`, and will go on to evaluate the call to `all-positive?` But if it produces `false` it will not.

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### Question 10

1/1 point (graded)

Is the recursive call `all-positive?` in tail position?

☐ yes

☒ no



**Explanation**  
No, because its result needs to be operated on by `and` first. The reason the `and` expression is waiting for the result of the call to `all-positive?` is that `and` will produce an error if the call to `all-positive?` does not produce a boolean. In most other languages (including the actual racket language), the last operand to an `and` expression would be in tail position. This is just the teaching languages being helpful by checking for this possible error.

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