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Questions 1-3

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Question 1

1/1 point (graded)

Consider the following:

```
(define (scarpet s)
  (if (<= s CUTOFF)
      (square s "outline" "red")
      (overlay (square s "outline" "red")
                (local [(define sub (scarpet (/ s 3)))
                        (define blk (square (/ s 3) "solid" "white"))]
                  (above (beside sub sub sub)
                          (beside sub blk sub)
                          (beside sub blk sub)))))))
```

What is the base case?


- ☐ (square s "outline" "red")
- ☒ (<= s CUTOFF)
- ☐ (>= s CUTOFF)
- ☐ (= s CUTOFF)



Explanation
Similar to `stri` in the video, the base case is `(<= s CUTOFF)` by looking at the function definition.

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Question 2

1/1 point (graded)

What is the reduction step?

- ☒ (/ s 3)
- ☐ (scarpet (/ s 3))
- ☐ (square (/ s 3) "solid" "white")



Explanation
According to the function definition, the next problem is `(/ s 3)`, which is the reduction step.

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Question 3

1/1 point (graded)

What is the argument that repeated application of the reduction step will eventually reach the base case?

- ☐ Repeated division by 3 will eventually reach the base case
- ☐ As long as `CUTOFF` is `> 0`, repeated division by 3 will eventually reach the base case
- ☒ As long as `CUTOFF` is `> 0` and `s` starts `>= 0`, repeated division by 3 will eventually reach the base case
- ☐ As long as `CUTOFF` is `>= 0` and `s` starts `> 0`, repeated division by 3 will eventually reach the base case



Explanation

If we start with a legal $s \geq 0$, $CUTOFF > 0$, and keep doing the reduction step, we will eventually hit the base case: ($s \leq CUTOFF$)

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