Presentation 7

Conditionals & Control Flow

Announcements For This Lecture

Assignment 1

- Should be working on it
  - Have covered everything
  - Look at **lab** for more help
- Due Wednesday at mid.
  - Can work at it during lab
  - But labs are due as normal
- One-on-Ones ongoing
  - Lots of spaces available

Partners

- **You** must pair in CMS
- Go into the submission
  - Request your partner
  - Other person accepts

AI Quiz

- Sent out several e-mails
- Will start dropping Tues

Announcements For This Lecture

Assignment 1

- Should be working on it
  - Have cover[illegible]
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Quiz

- Sent out several e-mails
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Video Lessons

- **Lesson 9** for today
- **Lesson 10** for next time

About The Current Lab

- Has you write functions with conditionals
  - Technically (a little) harder than A1
  - Historically it was held after A1 was due
- **Compromise:** Due next Thurs/Fri
  - Have a week to work on it (and do A1 first)
  - If you are struggling get help in next lab
- No new lab covered next Tues/Wed
  - Time in class to work on assignment
  - Or to get help on conditionals lab

A Simple Function

```
def sign(n):
    """
    Returns the "sign" of the number n.

    The sign is 1 if n > 0, -1 if n < 0 and 0 if n == 0.

    Parameter n: the number to check
    Precondition: n is a number (int or float)
    """
```

A Simple Function

Function Definition

```
def sign(n):
13      """Returns "sign" n."""
        ...
20      if n > 0:
21          return 1
22      elif n < 0:
23          return -1
24      else:
25          return 0
```

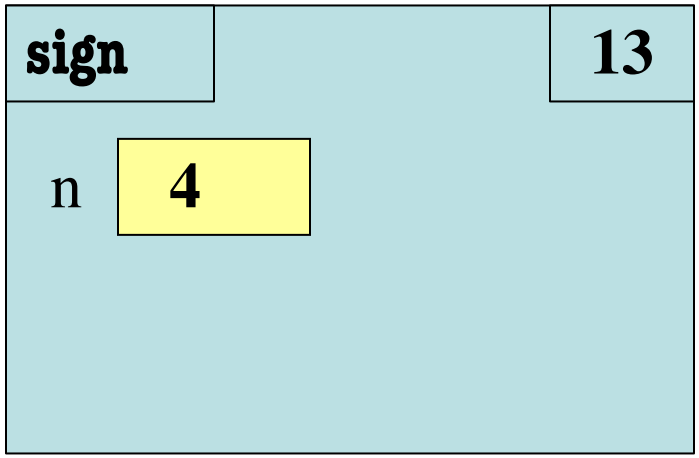
Function Call

```
>>> x = sign(4)
```

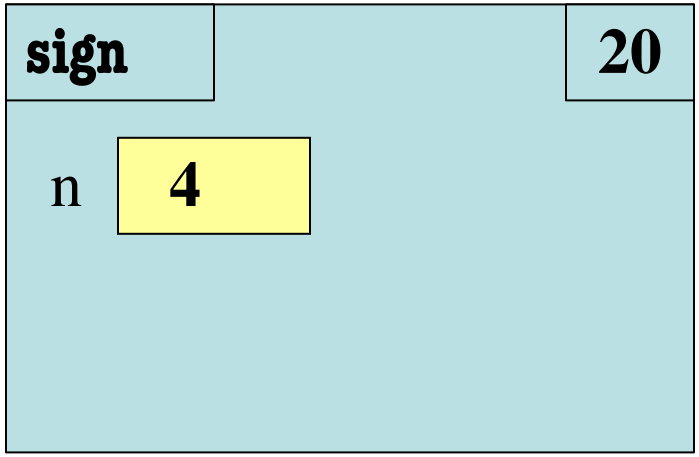
What does the frame look like at the **start**?

Which One is Closest to Your Answer?

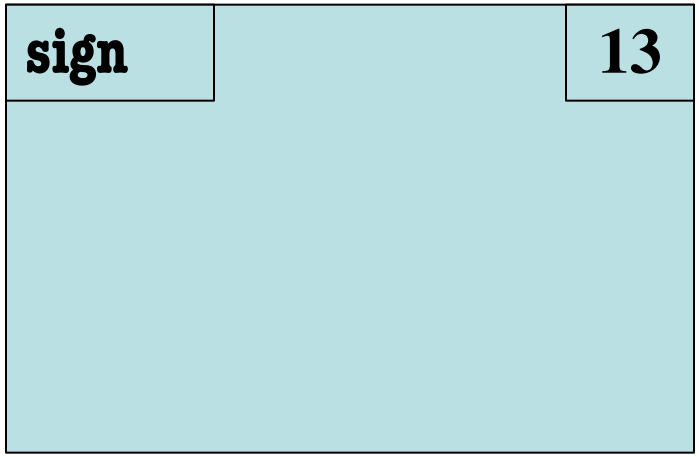
A:



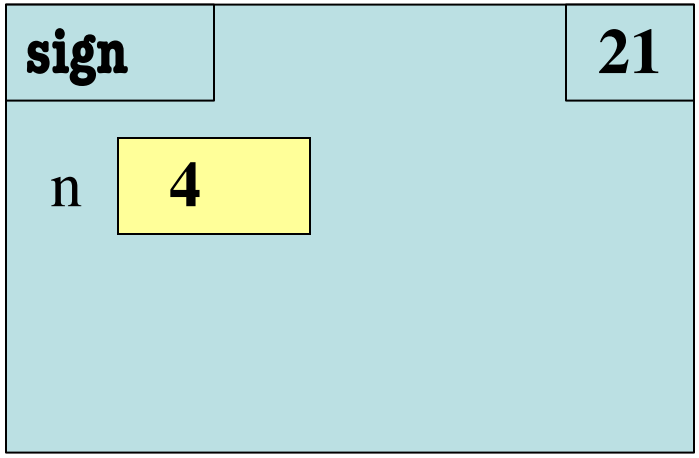
B:



C:



D:



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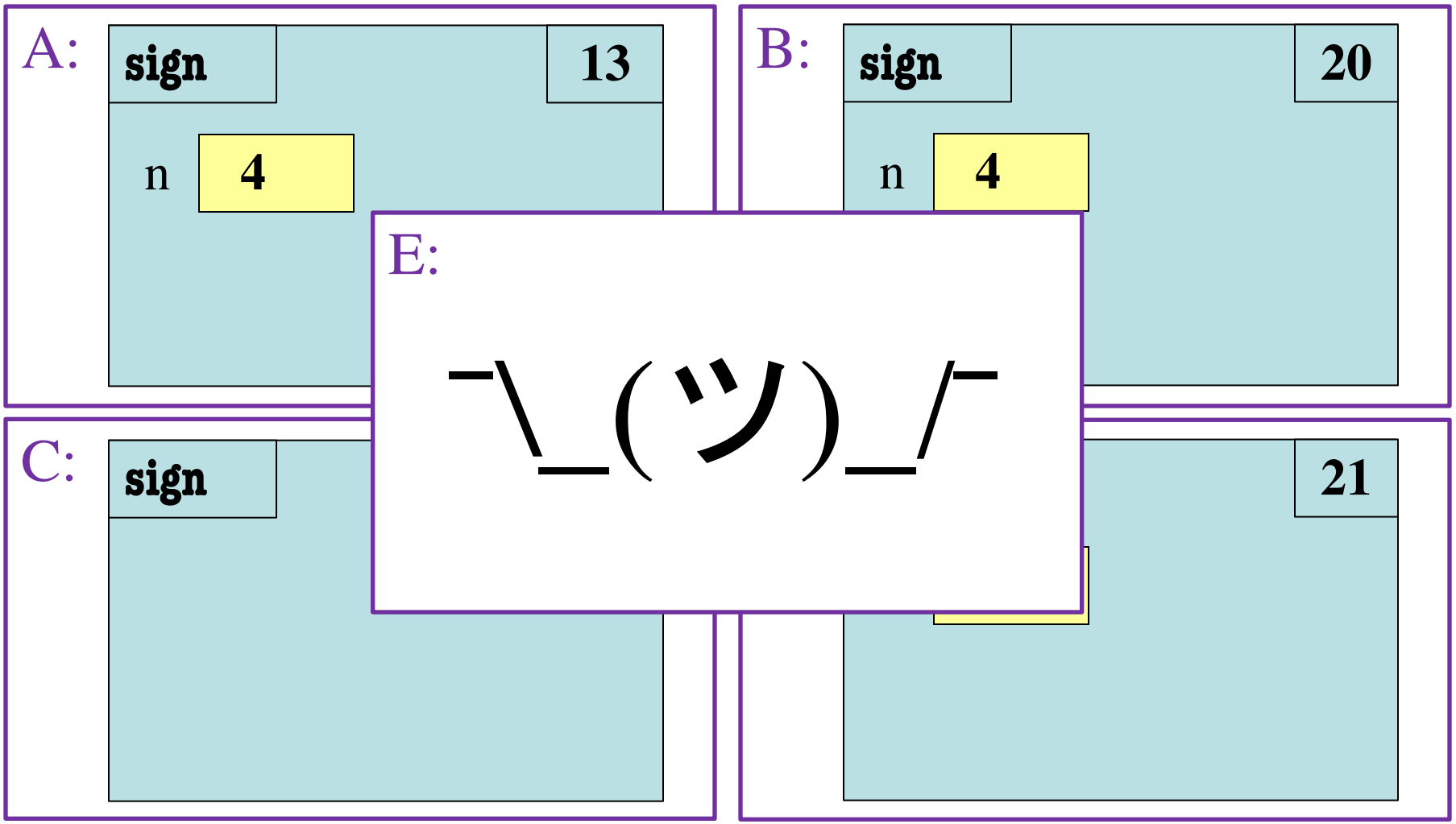

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```

Function Call

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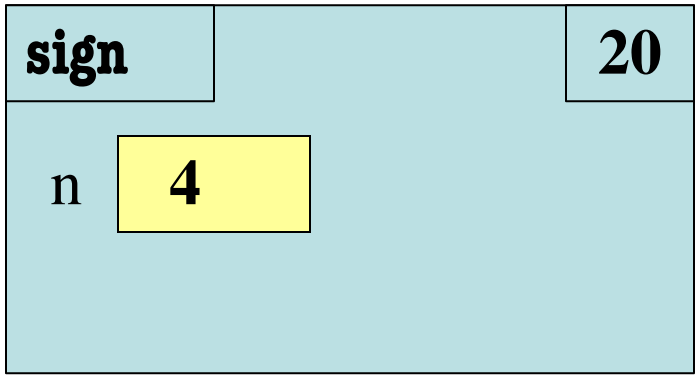

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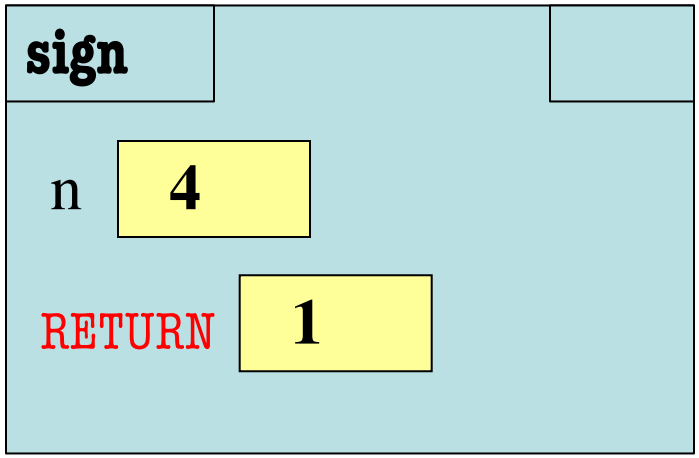

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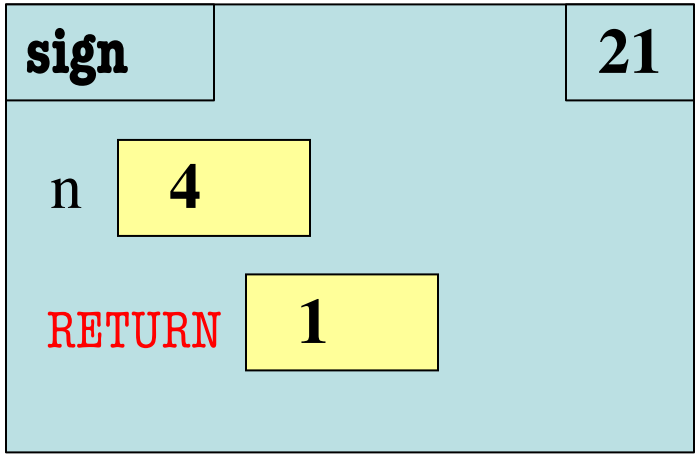

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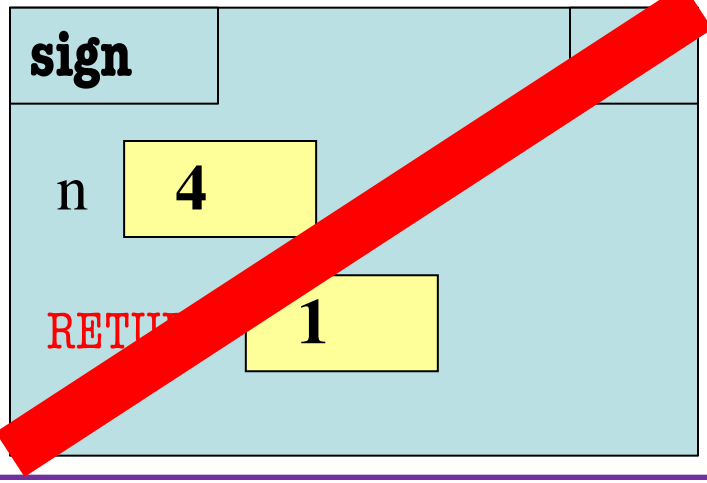

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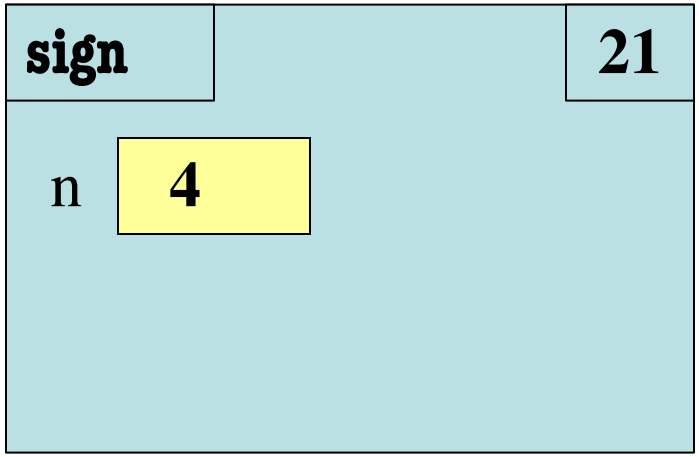

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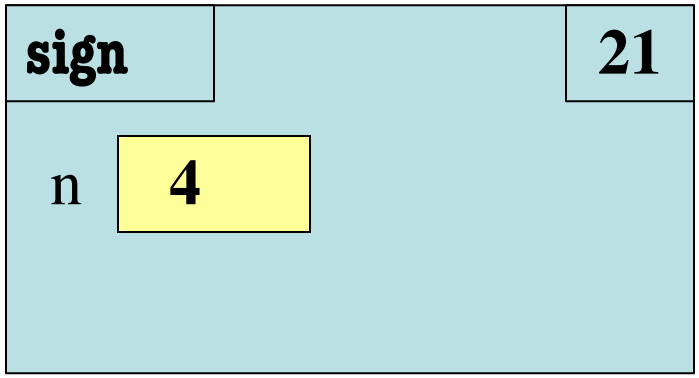

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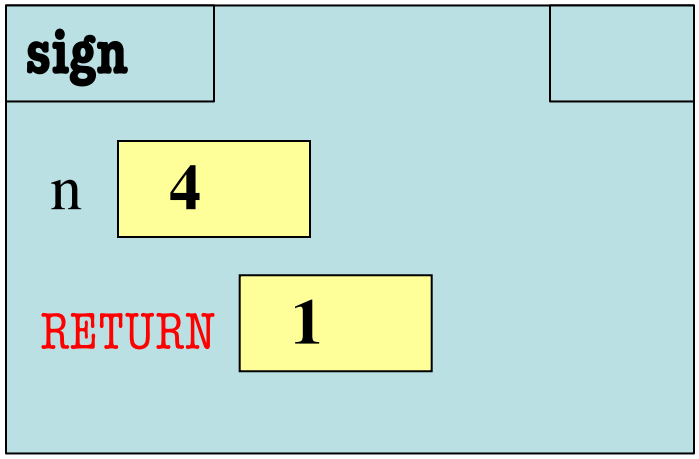

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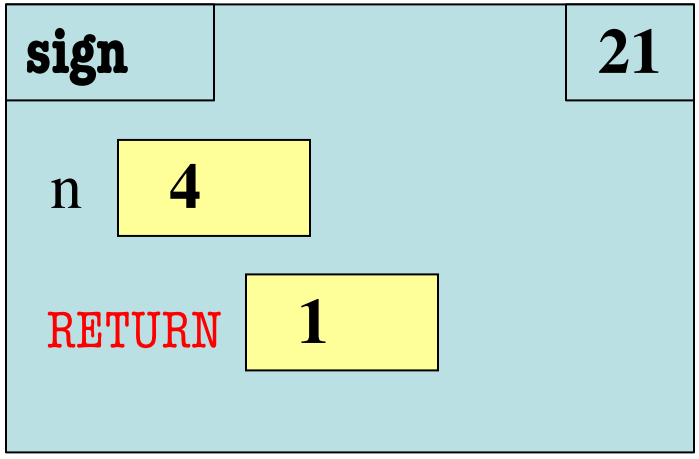

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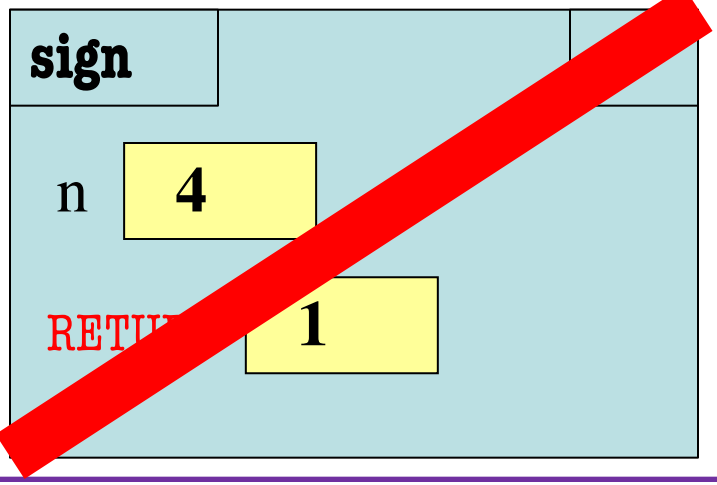

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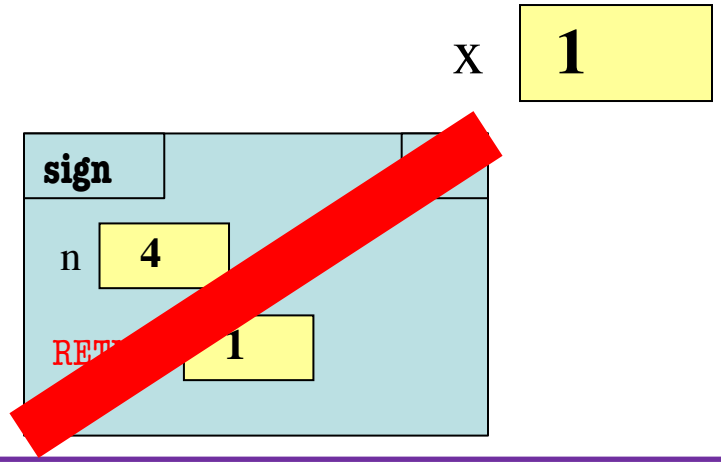

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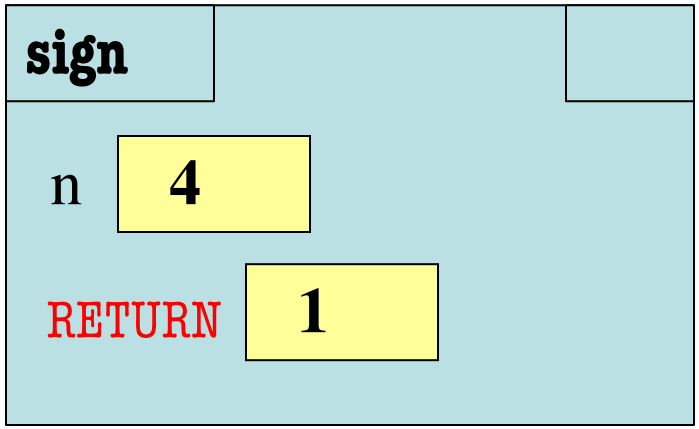

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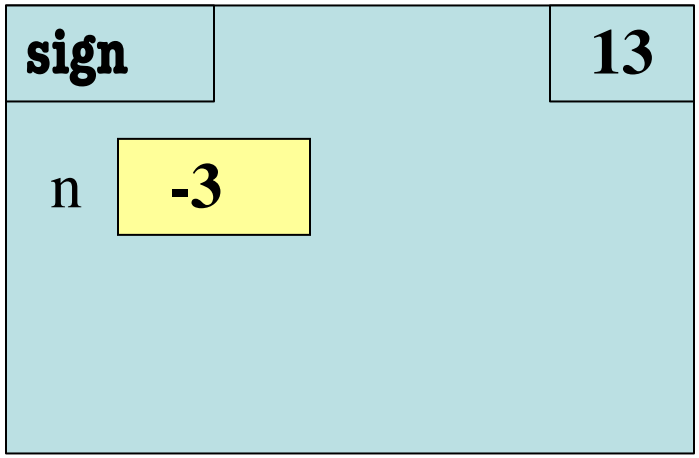

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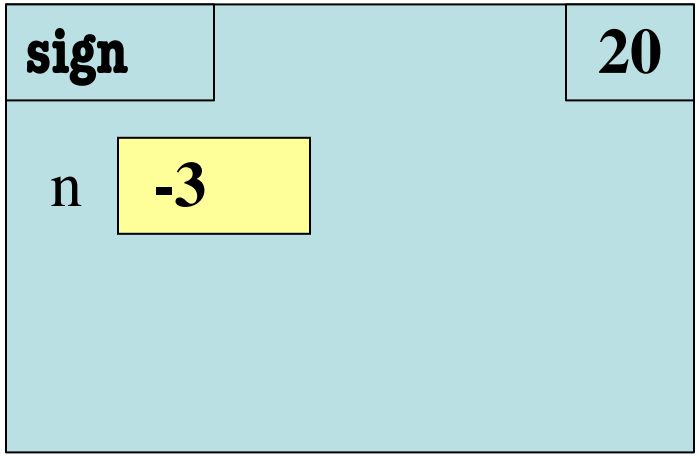

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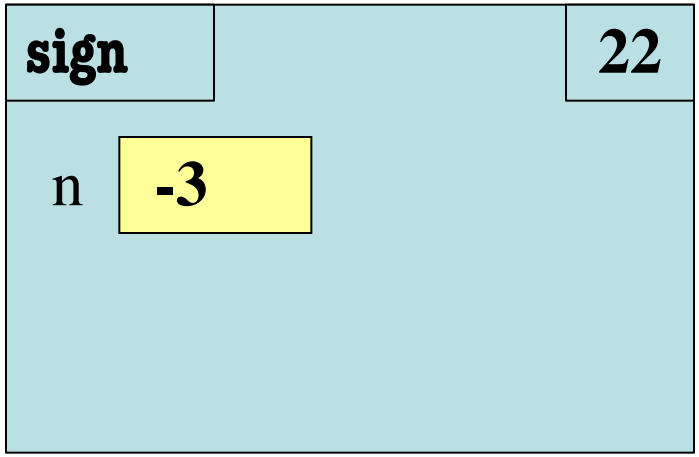

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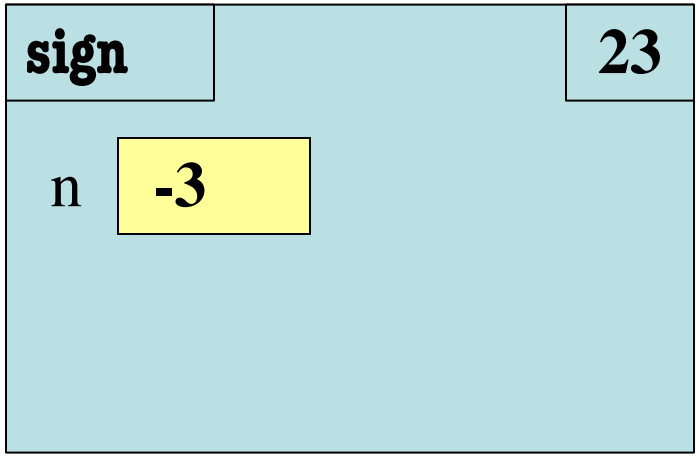

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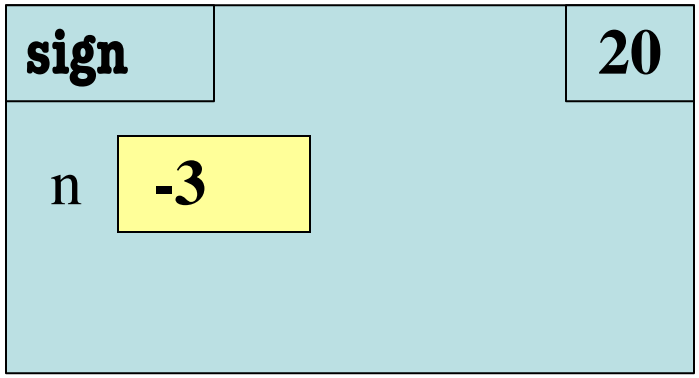

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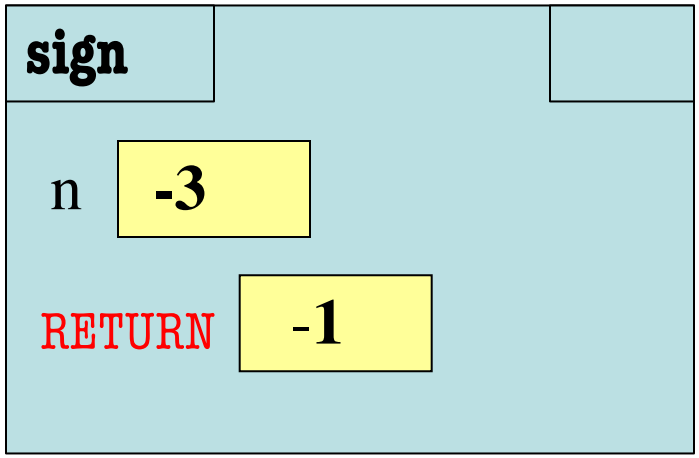

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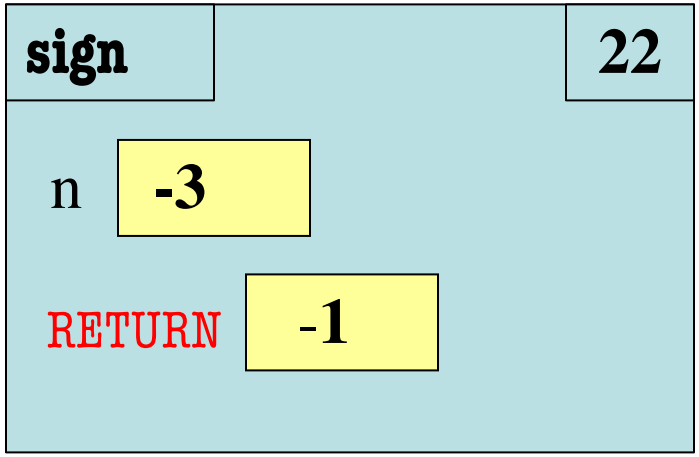

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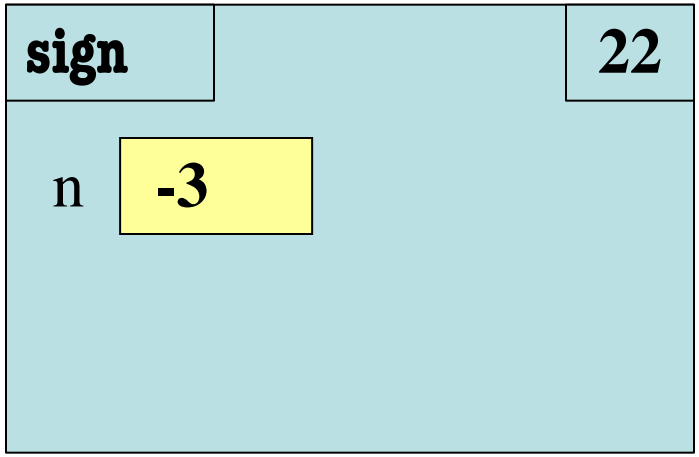

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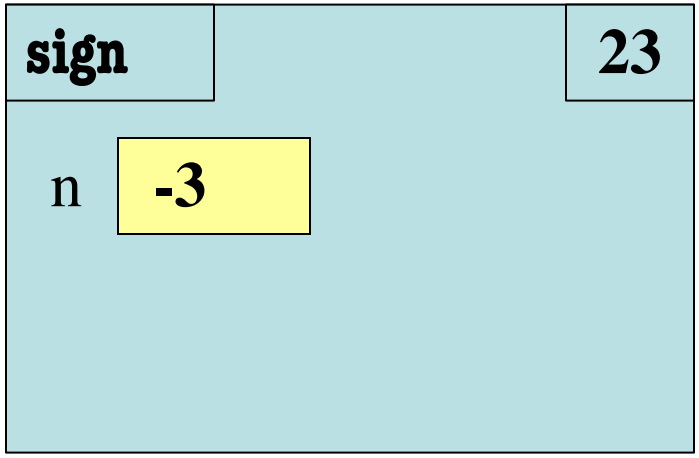

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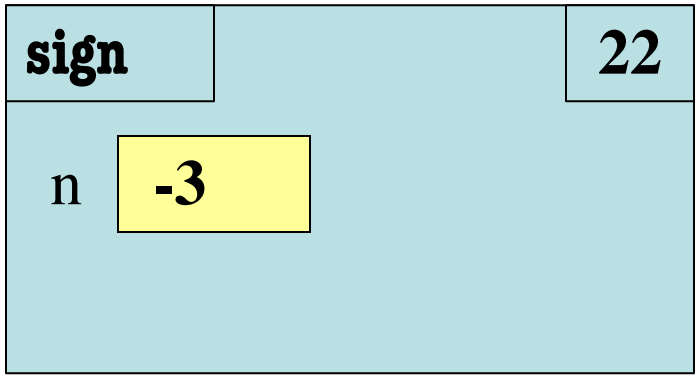

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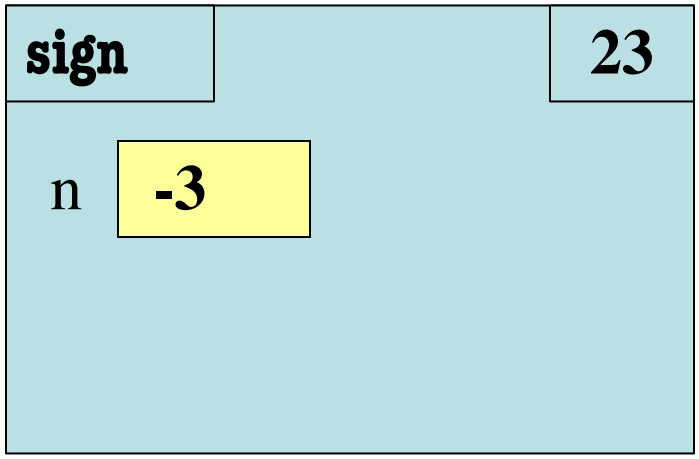

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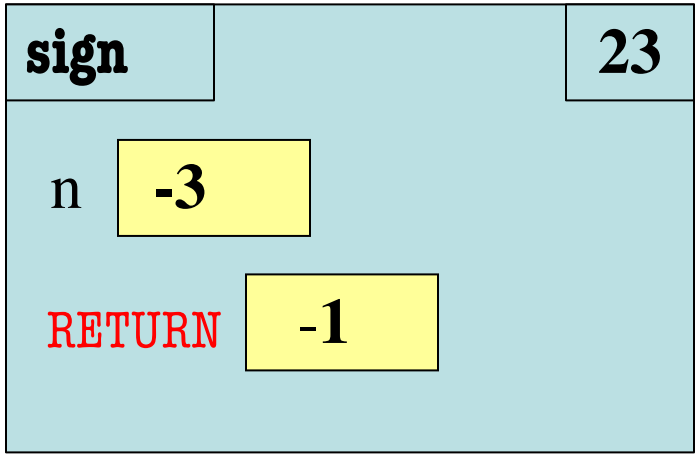

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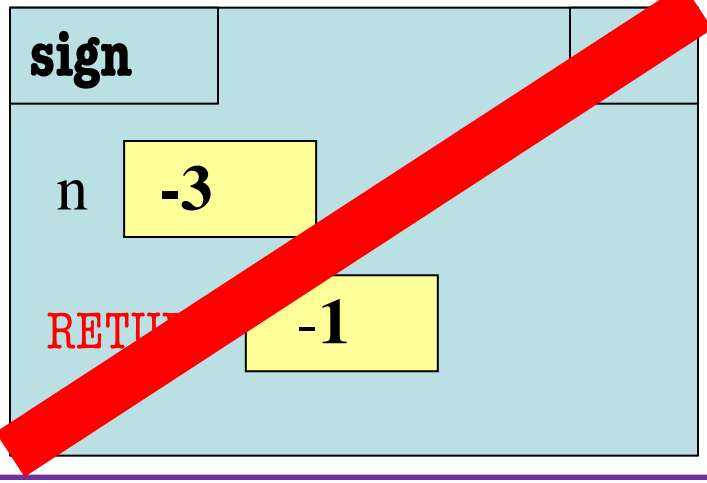

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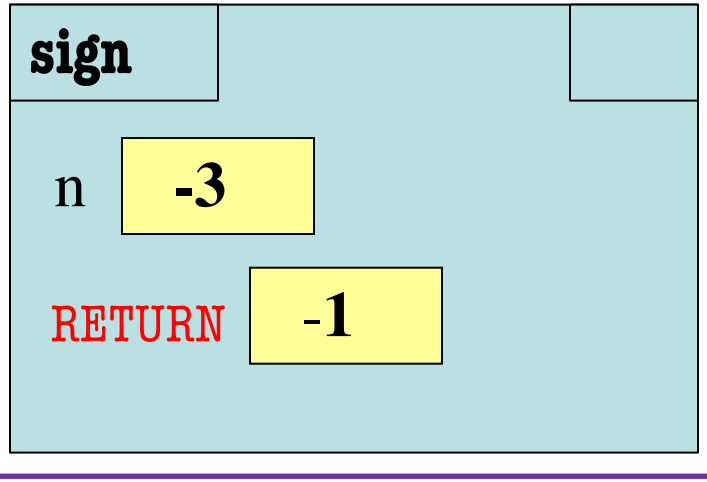

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Function Call

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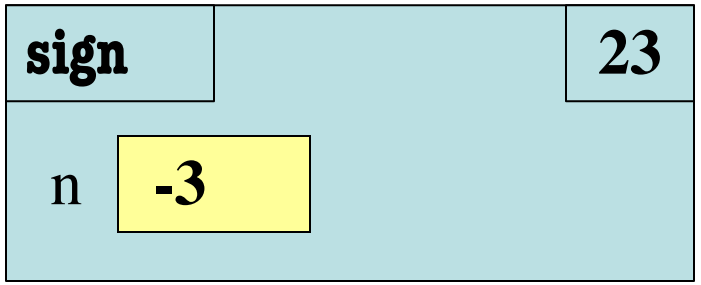

Only thing changing is Instruction Counter

One Last Time

Function Definition

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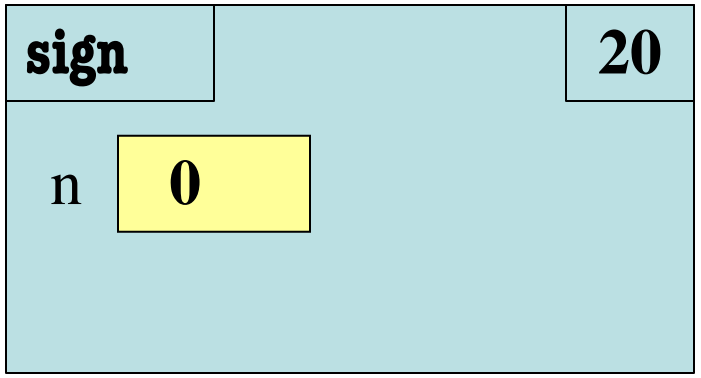
```

Function Call

```
>>> x = sign(0)
```

You start with:



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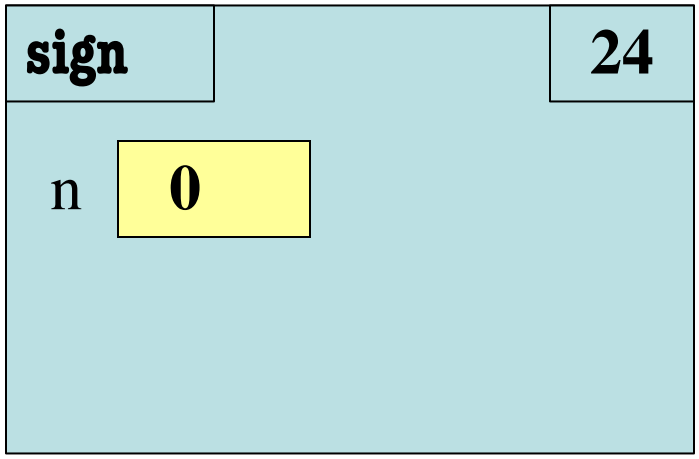

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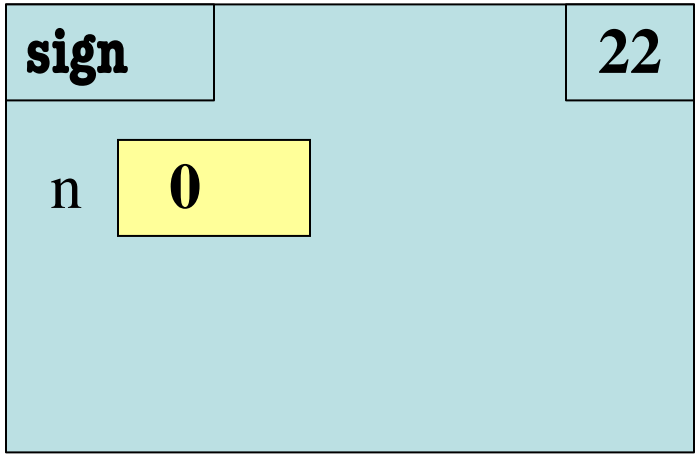

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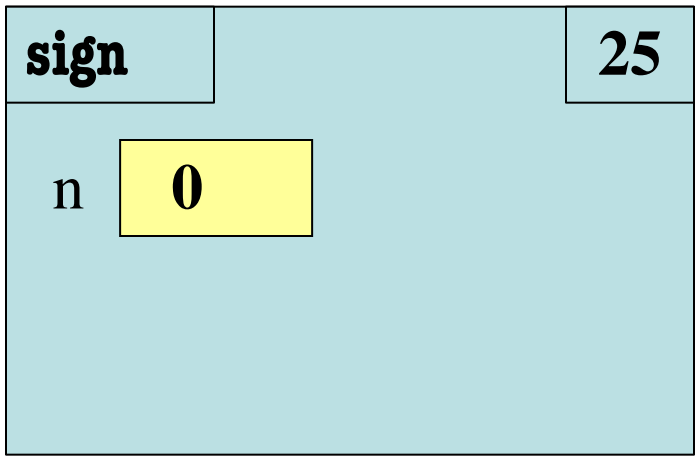

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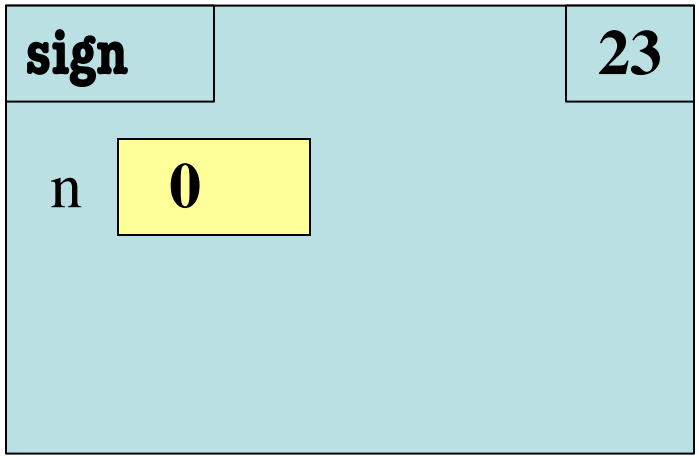

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```

Function Call

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```

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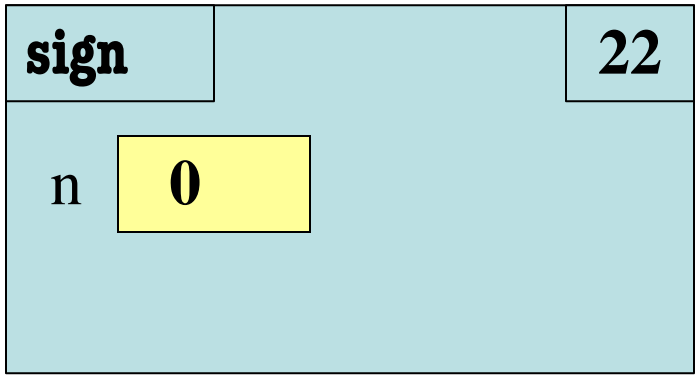

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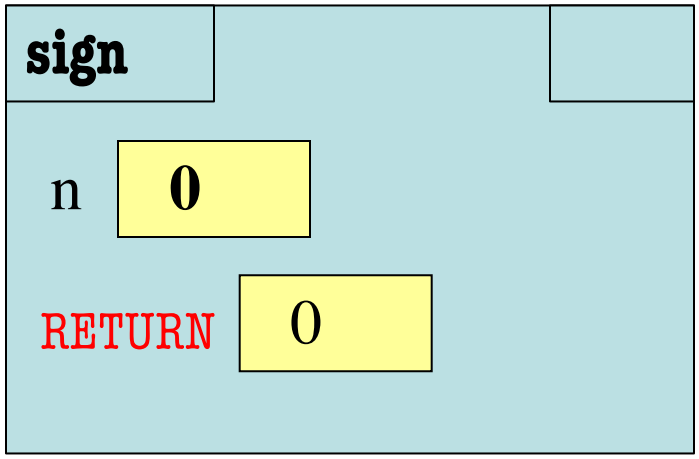

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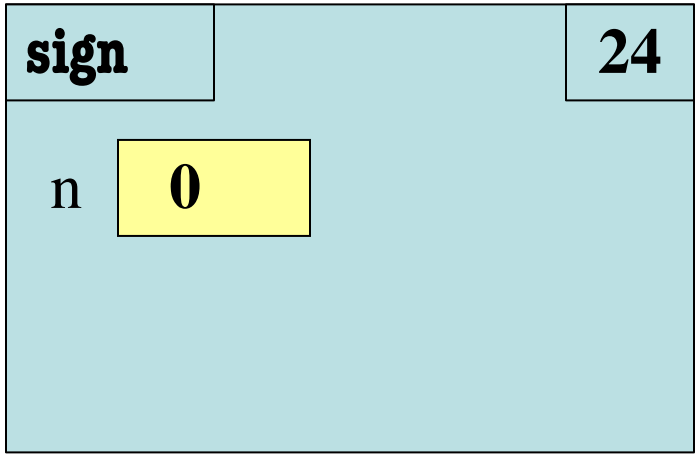

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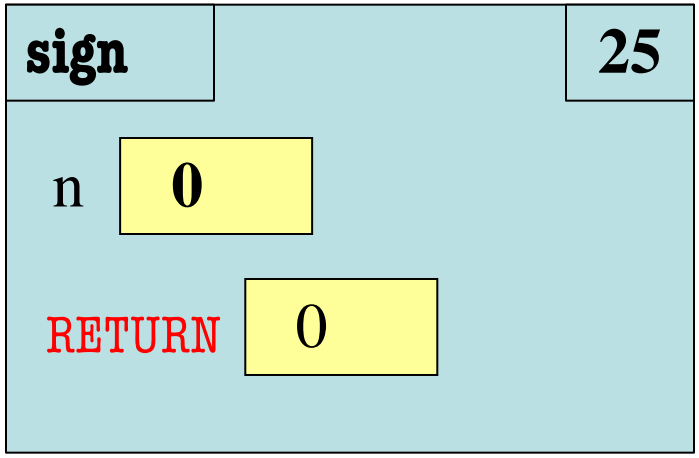

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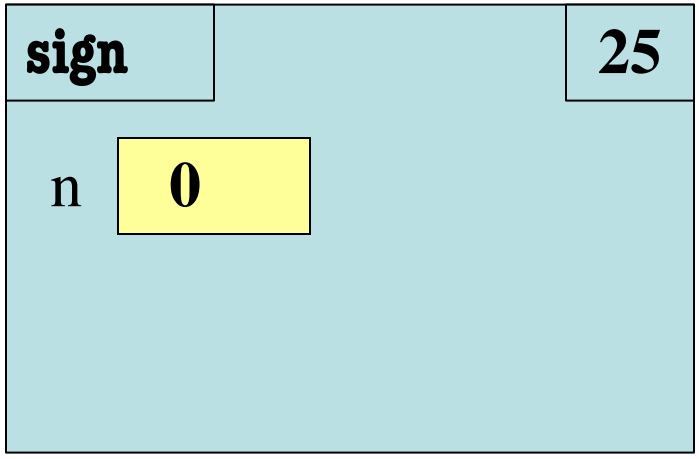

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Function Call

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```

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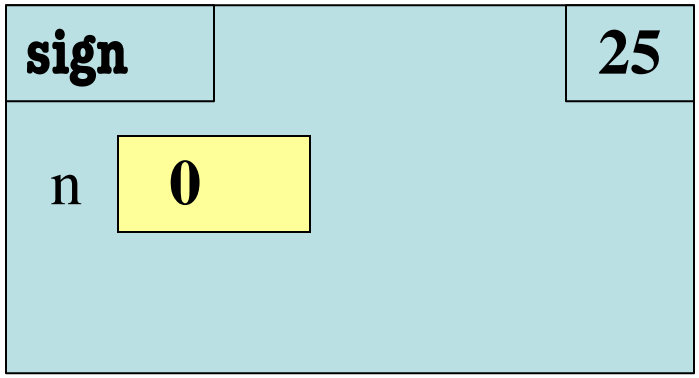

else is not executed!

Bonus Question

Write sign(n) as a conditional expression

A. `1 if x > 0, -1 elif x < 0, else 0`

B. `if x > 0 then 1 elif x < 0 then -1 else 0`

C. `1 if x > 0 else (-1 if x < 0 else 0)`

D. `(1 if x > 0 else -1) if x < 0 else 0`

E. What is a conditional expression?

Questions?

Recall: Designing Tests

```
def disemvowel (s):
    """Returns a copy of s with vowels removed

    Vowels are a, e, i, o, and u.  y is not a vowel

    Example: disemvowel('boat') returns 'bt'

    Parameter s: a string to disemvowel
    Precondition: s is a nonempty string of
    lowercase letters"""
```

How Many Valid, Different Tests?

Input	Output
'aeiou'	''
'heat'	'ht'
'bather'	'bthr'
'sky'	'sk'
'Ashen'	'shn'
'a12'	'12'
15.0	**ERROR**

A: 2

B: 3

C: 4

D: 5

E: 6