

Evaluate

Evaluate each expression below and write your answer underneath.

1-1.0 or 'two'*0 and 'hype' and 2
''

print() and not 5 + False
None

print or 'plan' and not print()()()
<function>

-0 or true and not -0
Error

Code Writing

1: Next Collatz

Write a function `collatz` that takes in an integer `n`. If `n` is even, it returns half of `n`. Otherwise it returns `3 * n + 1`. Then write a function `next_collatz` that applies this process twice.

```
def collatz(n):  
    return n // 2 if n % 2 == 0 else 3 * n + 1  
  
def next_collatz(n):  
    return collatz(n // 2 if n % 2 == 0 else 3 * n + 1)
```

2: Smallest

Write a function `smallest` that takes in three numbers and returns the smallest one of them.

```
def smallest(a, b, c):  
    if a <= b and a <= c:  
        return a  
    if b <= a and b <= c:  
        return b  
    return c
```

3: Closest

Write `abs`, an absolute value function. Then write `closest`, which takes three arguments. The first one is a target. The function returns whichever of the other two arguments is closer to that target. If they're the same distance away, then the function should return the string `'tie'`.

```
def abs(n):  
    return n if n >= 0 else -n  
  
def closest(target, mark1, mark2):  
    d1, d2 = abs(target - mark1), abs(target - mark2)  
    if d1 < d2 :  
        return mark1  
    elif d1 > d2 :  
        return mark2  
    return 'tie'
```

What Would Python Do

Fill in the unfinished environment diagram to match the code.

```
def strange(orange, red, yellow):
    if orange <= red or yellow:
        print('strange')
        if not not yellow:
            print('peel the orange')
    elif red < orange or yellow:
        orange = orange // 2 - red
        return orange, not yellow, red
    if orange:
        return print or tnirp

lemon = 17
go = print('fire') and True or False and lime
chestnut = 144
ocelot, lynx, lion = strange(chestnut, lemon, go)

strange(ocelot, lion, lynx)("Oh what fun!")
```

