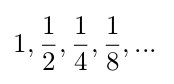
1. What is wrong with this recursive function?

def factorial(n):

return n \* factorial(n)

1. A geometric series is a series whose first element is some number *a*; each element is equal to the previous element multiplied by some other number *r*. For example, the series



is a geometric series with the first element *a = 1* and ratio *r = 1/2*.

Implement a function geo\_sum that takes three numbers a and r (as defined above) and n, and calculates the sum of the first n elements of the geometric series defined by a and r. **Use recursion!**

**def** **geo\_sum**(a, r, n):

"""Returns the first n elements of a geometric series.

>>> geo\_sum(1, 1/2, 4) # 1 + 1/2 + 1/4 + 1/8

1.875

>>> geo\_sum(2, 2, 3) # 2 + 4 + 8

14

"""

"\*\*\* YOUR CODE HERE \*\*\*"

1. Draw an environment diagram

def factorial(n):

if n == 0:

return 1

return n \* factorial(n-1)

ans = factorial(2)

1. Draw an environment diagram

def bar(f):

def g(x):

if x == 1:

return f(x)

else:

return f(x) + g(x - 1)

return g

f = 4

bar(lambda x: x + f)(2)

Exam questions:

Fall 2016: 3b

Spring 2015: 3c