from ucb import main, interact

# Review

from operator import floordiv, mod

def divide_exact(n, d):
    """Return the quotient and remainder of dividing n by d."""
    return floordiv(n, d), mod(n, d)

def cube(k):
    return pow(k, 3)

def summation(n, term):
    """Sum the first n terms of a sequence."
    total, k = 0, 1
    while k <= n:
        total, k = total + term(k), k + 1
    return total

def make_adder(n):
    """Return a function that takes one argument k and returns k + n."
    def adder(k):
        return k + n
    return adder

# Composition

def compose1(f, g):
    """Return a function that composes f and g. f, g are functions of a single argument."
    def h(x):
        return f(g(x))
    return h

def square(x):
    return x * x

def triple(x):
    return 3 * x

squiple = compose1(square, triple)
tripare = compose1(triple, square)

@main
def run():
    interact()