```python
# -*- coding: utf-8 -*-
# Week 1 - Assessed exercises

# Q1 Write a for loop to compute the sum of x^2 for x from 0 to 8. What is the
# value of this sum?
sum=0
for x in range(0,9):
    sum+=pow(x,2)
print('sum=',sum,'\n')
# Ans:204

# Q2 Define a function (addition) that returns the sum of two numbers x and y.
# Use the function to calculate 2.09 + 8.73
def addition(x,y):
    sum=x+y
    return sum
print('2.09+8.73=',addition(2.09,8.73),'\n')

# Ans: 10.82

# Q3 Find the 3 errors in the code below. The function sin_estimate should
# calculate an estimate of the sine function at the value 'x', with an error
# tolerance of 'tol'. After finding the 3 errors and fixing the code, the
# variable y should equal 0.09983341666666667
import math
def sin_estimate(x,tol=10**-10):
    sin_est = 0
    i = 0
    error = abs(sin_est-math.sin(x))
    while error>tol and i<50:
        sin_est += ((-1)**i)*(x**(2*i+1))/math.factorial(2*i+1)
        error = abs(sin_est-math.sin(x))
        i += 1
    return  sin_est
y = sin_estimate(0.1)
print('y=',y,'\n')
# Ans: Error 1 = _:___, Error 2 = _import math___, Error 3 = _i+=1___

# Q4 A bakery sells cupcakes, cookies and pastries. A cupcake costs €1.50, a
# cookie costs €1.00 and a pastry costs €0.80. However, the bakery offers
# discounts if you buy multiple items. If you buy 4-8 cupcakes they cost €1.20
# each, and if you buy more then 8 they are €1.00 each. If you buy 5 or more
# cookies they are €0.80. If you buy more than 3 pastries they are reduced to
# €0.65 each, and reduced further to €0.50 if you buy 10 or more.
# Create a set of nested if/elif/else statements to determine the price of each
# item based on the amount the customer requests and then computes the total
# cost of the order.
# Pay attention to the phrasing "more than n", "n or more" one includes the
# value 'n' and the other does not.
# Use your code to determine the total cost of 8 cupcakes, 4 cookies and 12
# pastries.
def cost_count(n1,n2,n3):
    if n1<4:
        total_cost=1.5*n1
    elif n1>=4 and n1<=8:
        total_cost=1.2*n1
    else:
        total_cost=n1
    if n2<5:
        total_cost+=n2
    else:
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        total_cost+=0.8*2
    if n3<=3:
        total_cost+=0.8*n3
    elif n3>3 and n3<10:
        total_cost+=0.65*n3
    else:
        total_cost+=0.5*n3
    return total_cost
print('the total cost of 8 cupcakes, 4 cookies and 12 pastries is',cost_count(8,4,12))
# Ans:19.6
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