BearHacks Coding Challenge

Count Evens

By Christopher Lin

Count the number of even integers in a list.

Suggested Format: `count_even(input_list)`

Examples
```
count_even([1,6,5,3,8]) --> 2
count_even([32,55,84,6,2]) --> 4
```

Vector Length

by Angela Lin

Compute the Euclidean length of a vector. You can use python's built in square root function. The length of a vector $v = [v_1, v_2, \ldots, v_n]$ is given by:

$$\text{Euclidean length} = \sqrt{v_1^2 + v_2^2 + \cdots + v_n^2}$$

You may assume the input will be given to you as a list.

Suggested Format: `vector_length(vector)`

Examples
```
vector_length([1,1]) --> 1.4142135623730951
vector_length([3,4]) --> 5
```

Check Prime

By Christopher Lin

Given a number n, return True if n is a prime number. Otherwise, return False. n will be in the range $(2, 10000)$.

Suggested Format: `check_prime(input)`

Examples
```
check_prime(5) --> True
check_prime(2798) --> False
check_prime(919) --> True
```

Same Horse

By Chris Jeng

Given a list of Strings, complete each "`same`" to be "`samehorse`", and each "`ditto`" to copy the word behind it. You may assume that the last String in the list will not be "`ditto`".

Suggested Format: `samehorse(input)`

Examples

```
samehorse(["Hello", "same", "ditto", "waffles", "ditto", "same"]) -->
["Hello", "samehorse", "waffles", "waffles", "samehorse", "samehorse"]


sample_input = ["ditto", "ditto", "same"] -->
samehorse(sample_input) --> ["samehorse", "samehorse", "samehorse"]
```

Linear Interpolation

By Christopher Lin

You are given two pairs of (x, y) coordinates that uniquely identify a linear function. Compute $f(x_{\text{input}})$, where x_{input} is the third argument of the method.

Suggested Format: `linear(x1y1, x2y2, x_input)`

Examples

```
linear((0, 0), (1, 1), 4) --> 4
linear((0, 0), (1, 3), 2) --> 6
```

Lightsaber Construction

By Chris Jeng

Lightsabers are made of toothpicks and chopsticks. We need to make a lightsaber that is goal centimeters long. We have a number of toothpicks (1 cm) and chopsticks (5 cm). Return True if it is possible to make a lightsaber of the desired length by choosing from the given toothpicks and chopsticks, otherwise return False. This can be done without any loops.

Suggested Format: `make_lightsaber(num_toothpicks, num_chopsticks, goal_length)`

Examples

```
make_lightsaber(3, 1, 8) --> True
make_lightsaber(3, 1, 9) --> False
make_lightsaber(3, 2, 10) --> True
```