**Getting Ready for Physics Class**

You are a physics teacher preparing for the upcoming semester. You want to provide your students with some functions that will help them calculate some fundamental physical properties.

**Turn up the Temperature**

**1.**

Write a function called f\_to\_c that takes an input f\_temp, a temperature in Fahrenheit, and converts it to c\_temp, that temperature in Celsius.

It should then return c\_temp.

The equation you should use is:

Temp (C) = (Temp (F) - 32) \* 5/9

**2.**

Let’s test your function with a value of 100 Fahrenheit.

Define a variable f100\_in\_celsius and set it equal to the value of f\_to\_c with 100 as an input.

**3.**

Write a function called c\_to\_f that takes an input c\_temp, a temperature in Celsius, and converts it to f\_temp, that temperature in Fahrenheit.

It should then return f\_temp.

The equation you should use is:

Temp (F) = Temp (C) \* (9/5) + 32

**4.**

Let’s test your function with a value of 0 Celsius.

Define a variable c0\_in\_fahrenheit and set it equal to the value of c\_to\_f with 0 as an input.

**Use the Force**

**5.**

Define a function called get\_force that takes in mass and acceleration. It should return mass multiplied by acceleration.

**6.**

Test get\_force by calling it with the variables train\_mass and train\_acceleration.

Save the result to a variable called train\_force and print it out.

**7.**

Print the string “The GE train supplies X Newtons of force.”, with X replaced by train\_force.

**8.**

Define a function called get\_energy that takes in mass and c.

c is a constant that is usually set to the speed of light, which is roughly 3 x 10^8. Set c to have a default value of 3\*10\*\*8.

get\_energy should return mass multiplied by c squared.

**9.**

Test get\_energy by using it on bomb\_mass, with the default value of c. Save the result to a variable called bomb\_energy.

**10.**

Print the string “A 1kg bomb supplies X Joules.”, with X replaced by bomb\_energy.

**Do the Work**

**11.**

Define a final function called get\_work that takes in mass, acceleration, and distance.

Work is defined as force multiplied by distance. First, get the force using get\_force, then multiply that by distance. Return the result.

**12.**

Test get\_work by using it on train\_mass, train\_acceleration, and train\_distance. Save the result to a variable called train\_work.

**13.**

Print the string "The GE train does X Joules of work over Y meters.", with X replaced with train\_work and Yreplaced with train\_distance.