HOMEWORK 3
FUNCTIONS

Please read the question carefully. If the question asks to print the output, you should just print. Otherwise, use return.

Problem 1. Write a function that takes a number of minutes as input, converts it to seconds, and prints out the result.

Problem 2. Write a function that takes the total bill amount and the tip percentage as inputs, and print out the total amount including the tip.

Problem 3. Write a function that takes the speed and speed limit as inputs, and prints out the speeding fine. Here are the rules

- If the driver is within the speed limit, there is no fine.
- If the driver exceeds the speed limit by up to 10 km/h, the fine is $50.
- If the driver exceeds the limit by more than 10 km/h, the fine is $100.

Here are two examples to demonstrate this problem. If the speed limit is 60 km/h and the driver is going 65 km/h, the fine is $50. If the driver is going 82 km/h, the fine is $100.

Problem 4. Write a function to process price at a movie theater. The function should take age as an input and print out the price of a movie ticket based on a person's age. The ticket prices are as follows:

- Below 5: Free.
- 6-12: $15
- 12 to 64: $20
- 65 and older: $10

Problem 5. Write a function to process a bank withdrawal. The function should take two inputs: the balance and the withdrawal amount. The function should do the following

- If there are enough funds, subtract the withdrawn amount from the balance, and print out the remaining balance.
- If the withdrawal amount is greater than the balance, the function should print "Insufficient funds" instead of reducing the balance.

Problem 6. Write a function called poly_perimeter that takes in two parameters, len_side, and num_sides, and returns the perimeter of the polygon. The perimeter of a polygon is the length of each side times the number of sides. For example, poly_perimeter(4,5) should return 20.

Problem 7. Create a function called get_hypotenuse that takes in two parameters, a and b, which represent the lengths of the two legs of a right triangle. The function should return the length of the hypotenuse. Use the Pythagorean theorem

$$\text{hypotenuse}^2 = a^2 + b^2,$$

to calculate and return the hypotenuse. For this problme, you will need to use that math libary, specially `math.squrt(n)` to calculate the squareroot of n.

Problem 8. Write a function called find_distance that takes in four parameters, x_1, y_1, x_2, y_2, and returns the distance between these two points (x_1, y_1) and (x_2, y_2). The distance is given by the following formula which is a consequence of the Pythagorean theorem

$$d = \sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2}$$

Problem 9. Write a function called total_string_length that takes in two parameters, str1 and str2, and returns the total length of these two strings.

Problem 10. Write a function called address that combines 3 different string address parameters (city, state, and zip) and returns a user's address. After the city and state inputs, add a comma and a space. For example,

```
address('Seattle', 'WA', '98105')
```

should return "Seattle, WA, 98105".

Problem 11. Write a function apply_discount(price, is_member) that applies a discount based on membership status:

- 10% discount for members.
- No discount for non-members.

For example

```
apply_discount(100, True)
```

should return 90.