PROGRAMMING PRACTICE FOR DAY 2

CS 125

1. **Clock arithmetic:** Suppose you keep time with a 24-hour clock. That is, hour 11 refers to 11am, hour 23 refers to 11pm, and hour 0 refers to midnight. If it is currently hour 9, and you set a timer to go off in 52 hours, then the clock will say hour 13 when the alarm goes off.

   Write a Python program that asks the user for the current hour and the number of hours on the timer. Your program should then print the hour on the clock when the alarm goes off.

2. **Wind chill:** If w represents the wind speed in miles per hour, and t represents the temperature in degrees Fahrenheit, then the wind chill is calculated according to the following formula:

$$35.74 + 0.6215t - 35.75w^{0.16} + 0.4275tw^{0.16}$$

   Write a program that asks the user for the wind speed and temperature, and then prints the wind chill.

   When you run your program, it should look something like this:

```
Enter the wind speed (in miles per hour): 20
Enter the temperature (in degrees Fahrenheit): 5
The wind chill is:  -15.435721635148337
```

   Here is another sample screenshot of the wind chill program:

```
Enter the wind speed (in miles per hour): 10
Enter the temperature (in degrees Fahrenheit): -5
The wind chill is:  -22.131599314136327
```

3. **Compound interest:** If a principle P is invested at interest rate r, compounded n times per year, then after t years the investment will have grown to amount A given by the following formula:

$$A = P\left(1 + \frac{r}{n}\right)^{nt}$$

   Write a program that asks the user for the principle, interest rate, the number of compoundings per year, and number of years. Your program should then output the amount to which the investment will grow.