

Laboratory in1278LR Introduction to Programming with Java
Delft University of Technology, Faculty EWI, Software Engineering Research Group.
Group = 2; Remainder = 1

Assignment 1

Create a new directory with the name Assignment1.

Use this directory to save all programs that you will create as part of this assignment.

General

In each of the following assignments a formula is given.

It is the intention that you construct a complete program around that particular formula.

The program should input values for the data in the formula from the keyboard using the **Standard Input Stream**.

The program should output the result of the calculation to the screen.

Please refer to Figure 2.4 of the book for an example.

Hints:

- Use Java-constants where applicable.
- Please adhere to the Java conventions w.r.t. capitalization.
- Give a motivation for your choice of data types.
- Check your results using a calculator (just to be sure).

Have all your assignments be graded by the student assistant.

Part 1

The power dissipated in a resistor of value R , given a voltage V over the resistor is given as $P = V^2 / R$

Part 2

Chapman page 51, number 4.

Part 3

A speed detection radar emits a beam of microwaves at a frequency f_0 . The beam is reflected off an approaching car, and the reflected beam is shifted from f_0 to f_1 due to the motion of the car. The relationship between the speed of the car v , in miles per hour and the two microwave frequencies is

$$v = \left(6.685 * 10^8 \right) * \frac{f_1 - f_0}{f_1 + f_0}, \text{ where the emitted waves have a frequency of } f_0 = 2 * 10^{10} \text{ sec}^{-1}. \text{ Using}$$

this formula, write a Java program to calculate and display the speed corresponding to a received frequency of $2.000004 * 10^{10} \text{ sec}^{-1}$.