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## 2 Checkpoint 2

### Aim of Checkpoint

This *Checkpoint* consists of **two** short programs to demonstrate basic input/output of variables and basic arithmetic. This checkpoint is worth **10%** of the course mark.

### Submission Dates

It is expected that this checkpoint is completed during the **second** laboratory session. Final submission date for this checkpoint is: **5.00 pm, Thursday 20th October**.

### Computing Task A

Write a JAVA program using the *Display* class to read a double value from the terminal and print out the *value*

1. when it is converted to an `int`,
2. and the difference between the `int` value and the original double value.

Test your program for both *positive* and *negative* numbers.

### Computing Task B

Write a JAVA program to calculate the *surface area* and *volume* of a sphere. Your program should:

1. Prompt you for the *radius* of the sphere in **mm**.
2. Calculate and display the *surface area* and *volume* in **m<sup>2</sup>** and **m<sup>3</sup>** respectively.

Check that your program works for radii in the range **0.01 mm** → **10 m** and that the output is formatted in a readable form with **5 significant** figures.

### End of Checkpoint

When you have completed **both** programs, call a demonstrator and show them the code and the programs working. This is the end of **checkpoint 2**. Ensure that the demonstrator checks off your name.

### Material Needed

*In addition to the material for Checkpoint 1 you will need material from the following sections:*

1. *Variables, Data Types and Operators*
2. *Basic Input and Output*

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## What Next?

You have just written your first useful programs, you now need to know how to make a program behave differently for different inputs, read on. . . .