First name: Mark
Last Name: Zadnik
Date: 20.12.03
Homework number: 1
Homework Title: Exercise 1.2

Problem description:

What are the absolute and relative errors in approximating ? by each of the following quantities?
(a) 3
(b) 3.14
(c) 22/7

Problem solution:

Find true value of ? and select the number of digits in your floating point arithmetic.

By definition:
absolute error = approximate value - true value
relative error = absolute error / true value

Results:

True value for ? for 5 digits = 3.1416
(a) absolute error: 3 - 3.1416 = -0.1416, relative error: 0.1416 / 3.1416 = 4.57 %
(b) absolute error: 3.14 - 3.1416 = -0.0016, relative error: 0.0016 / 3.1416 = 0.051 %
(c) absolute error: 3.1429 - 3.1416 - = 0.0013, rel. error: 0.0013 / 3.1416 = 0.041 %

Discussion and Comments (optional):

The best of the above approximations is 22/7.

Note:
The homework should be send by e-mail (in plain text, LaTex or MSWord) to `roman.trobec@ijs.si` with the file name equal to the last name and homework number (i.e. zadnik_hw01.doc).

After accepting, it will be published on the Class-web page:
`http://www-e6.ijs.si/~roman/usalz/cmdie03_04/homeworks`