Homework 1
Due: Thursday Sept. 11 by 11:55 PM
uploaded to NYU Classes in a single zip file called hw1.zip

These 3 problems are taken from Liang, repeated here for those who do not yet have the textbook. Note that the text also has a sample run with sample output that I didn’t copy over here. You can use the web-based system called LiveLab that accompanies the text to ‘test’ your programs. I will separately post LiveLab instructions.

Problem 1

Write a program that reads a Celsius degree in a double value from the console, then converts it to Fahrenheit and display the result. The formula for the conversion is as follows:

\[
\text{fahrenheit} = \frac{9}{5} \times \text{celsius} + 32
\]

Call your program Convert.java. Hint: in Java, 9/5 is 1, but 9.0 / 5 is 1.8. (This is problem 2.1 in Liang’s text).

Problem 2

Write a program that prompts the user to enter two points \((x_1, y_1)\) and \((x_2, y_2)\) and displays their distance between them. The formula for computing the distance is

\[
\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}
\]

Note that you can use Math.pow(a, 0.5) to compute \(\sqrt{a}\). Note that there is no exponentiation operator in java. You should multiply two numbers together instead of using Math.pow for simple integer powers (why?). Call your program Distance.java. (This is problem 2.15 in the text).

Problem 3

Write a program that prompts the user to enter the minutes (e.g. 1 billion), and displays the number of years and days for the minutes. for simplicity, assume a year has 365 days. Call your program Years.java. (This is problem 2.7 in the text).

Extra point: Are there any inputs for problems 2 or 3 that ‘break’ your code? Why and how? Include the answer and a little discussion of this in comments in your code.