Problem Set 1 Exercise #03: Freezer Temperature

Reference: Lecture 1 notes

Learning objectives: Program structure; Integer division issue

Estimated completion time: 15 minutes

Problem statement:

Write a program **PS1_Ex03_Freezer.java** that estimates the temperature (in degree Celsius) in a freezer given the elapsed time (in hours) since a power failure, using the following formula:

$$temperature = \frac{4 * hours^2}{hours + 2} - 20$$

User input will be two integers (separated by a space) indicating the *hours* and *minutes* elapsed since the power failure. You need to convert the inputs into hours before applying the formula.

For example, if the user entered 2 30 (meaning 2 hours 30 minutes), you need to convert it to 2.5 hours before applying the above formula.

Two sample runs are shown below, with user input highlighted in **bold**.

You may use the skeleton program provided in the package to start off.

Important notes:

Where applicable, you should use descriptive variable names so that their meanings are immediately clear when they appear in your program. This way, the readability of your program is much improved. In this exercise, better use variable names *hour* and *temperature* instead of *h* and *T*.

Naming of variables is an important aspect of coding style and is examined in PE.

Sample run #1:

```
Enter hours and minutes since power failure: 0 0
Temperature in freezer = -20.0
```

Sample run #2:

```
Enter hours and minutes since power failure: 2 30
Temperature in freezer = -14.444444444444445
```