

## Homework

### Grade 11 Review 2 – Selection, Repetition

1. **SortThreeLetters.java** Write a program that prompts for three lower case letters. If all inputs are valid (lower case letters), output the three letters in alphabetical order, otherwise, output an error message.
2. **LeastTwoPower.java** Write a program that reads a positive integer and then finds the smallest power of two that is greater than or equal to the number that are read. For example, if the program reads the value 25, it should note that  $32 = 2^5$  is the smallest power of two greater than or equal to 25.
3. **Paper.java**: Suppose that a large piece of paper with an area of  $1.0\text{m}^2$  and a thickness of 0.090 mm is cut in half and the two pieces are stacked, one on top of the other. Suppose further that the process of cutting in half and stacking is repeated over and over again. Write a program to find both the thickness of the pile and the area of each piece after the procedure has been carried out forty times.
4. **Pythagorean.java**: Three positive integers  $a$ ,  $b$ , and  $c$  with  $a < b < c$  form a Pythagorean triplet if  $a^2 + b^2 = c^2$ . For example 3, 4, 5 form a Pythagorean triplet since  $3^2 + 4^2 = 5^2$ . Write a program that first prompts the user for a positive integer and then finds and prints all Pythagorean triplets whose largest member is less than or equal to that integer.