Tutorial 6

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Exercise 1

Write a function integerPower(*base*, *exponent*) that returns the value of

Base^exponent

For example, integerPower(3, 4) = 3 * 3 * 3 * 3. Assume that *exponent* is a positive, nonzero integer and that *base* is an integer. Do not use any math library functions.

Exercise 2

(**Multiples**) Write a function multiple that determines for a pair of integers whether the second is a multiple of the first. The function should take two integer arguments and return true if the second is a multiple of the first, false otherwise. Use this function in a program that inputs a series of pairs of integers.

Exercise 3

*(**Even Numbers**)* Write a program that inputs a series of integers and passes them one at a time to function isEven, which uses the modulus operator to determine whether an integer is even. The function should take an integer argument and return true if the integer is even and false otherwise.

Exercise 4

Write a function that takes the time as three integer arguments
(hours, minutes and seconds) and returns the number of seconds since the last time the
clock "struck 12." Use this function to calculate the amount of time in seconds between two times,
both of which are within one 12-hour cycle of the clock.

Exercise 5

(Celsius and Fahrenheit Temperatures) Implement the following integer functions:

a) Function celsius returns the Celsius equivalent of a Fahrenheit temperature.

b) Function fahrenheit returns the Fahrenheit equivalent of a Celsius temperature.

c) Use these functions to write a program that prints charts showing the Fahrenheit equivalents
of all Celsius temperatures from 0 to 100 degrees, and the Celsius equivalents of
all Fahrenheit temperatures from 32 to 212 degrees. Print the outputs in a neat tabular
format that minimizes the number of lines of output while remaining readable.

```
// celsius returns Celsius equivalent of fTemp, given in Fahrenheit
Fahrenheit to Celsius = (5.0 / 9.0 * (fTemp - 32));


// fahrenheit returns Fahrenheit equivalent of cTemp, given in Celsius
Celsius to Fahrenheit = 9.0 / 5.0 * cTemp + 32);
```