

# Programming Exercise 9.5

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## How To Get Rich On A 5-Cent Weekly Allowance

**Purpose.** Learn how to deal with really large numbers, subject to whole number range limits and floating point number precision limits.

Imagine working out a deal with your parents for an allowance, that starts at a nickel per week -- how could they say "no" to that!? Then each week, simply double the amount paid in the previous week. So at the end of 1 week, you collect *5 cents*, and put it into your [piggy bank](http://en.wikipedia.org/wiki/Piggy_Bank). (Here's the URL for this link: [http://en.wikipedia.org/wiki/Piggy\\_Bank](http://en.wikipedia.org/wiki/Piggy_Bank).) At 2 weeks, you collect *10 cents* allowance, for a total of 15 cents in the piggy bank. At 3 weeks, you collect *20 cents* allowance, for a total of 35 cents in the piggy bank. And so on.

After you work out this deal, sit back and wait to become a billionaire!

**Requirements.** Write a computer program named `myBillions.cpp`, to calculate and print the number of weeks that it will take to reach a total of one billion dollars *or greater*. For example, if the question was how many weeks it would take to total 35 cents or more in the piggy bank, the answer would be "3 weeks". Print the answer in a full sentence, something like this:

```
In ?? weeks, I will be a billionaire!
```

...where ?? is replaced by the integer number of weeks.

There are no requirements about data types or loops to use in the program. Program design is your decision. But it must involve calculation, so that you do not simply work out the solution by hand and put just a print statement in the program.

Also compute how long it would take to become a thousandaire and a millionaire. To do so, you may want to copy/paste/markup the lines of code that you used for the billionaire calculation, putting the thousandaire version at the top and the billionaire version at the bottom.

**Program I/O.** Input: none. Output: Three whole numbers, each with labels.

**Example.** Your program's output should look something like:

```
In {your answer here} weeks, I will be a thousandaire!  
In {your answer here} weeks, I will be a millionaire!  
In {your answer here} weeks, I will be a billionaire!
```