**Jacob Bernoulli’s Assumption**

Suppose that you have an account that starts with 1YTL and pays 100% interest per year.

|  |  |  |
| --- | --- | --- |
| Compounded  | # periods per year | Future value |
| Annually |  |  |
| Semi-annually |  |  |
| Quarterly |  |  |
| Monthly |  |  |
| Daily |  |  |
| Hourly |  |  |
| Each Minute |  |  |

What do you expect, if the interval of the period gets smaller and smaller?

What will be the future value, if P YTL is invested for “t” years at a nominal rate “r”, compounded continuously?

NOTE: Jacob Bernoulli discovered this constant by studying a question about compound interest. Leonhard Euler started to use the letter *e* for the constant in 1721 or 1728.