|  |
| --- |
| You put **$10,000** into a bank account that earns **5** % interest per year.  How many years does it take for the account balance to be double the original? |
| **Example**: Horstman, page 17 |

**Variables?**

* Account balance *Balance*
* Number of years *Years*
* Yearly Interest *Interest*

**Algorithm**

*Years* 🡨 0

*Balance* 🡨 10000.00

**Repeat** **while** *Balance* < 20000.00

{

*Years* 🡨 *Years* + 1

Interest 🡨 *Balance* x 0.05

*Balance* 🡨 *Balance* + *Interest*

}

**Output** *Years*

|  |
| --- |
| You put an amount into a bank account that earns interest at a fixed rate every year.  How many years does it take for the account balance to reach a given desired target ? |
| **Generalization of Example**: Horstman, page 17 |

**Variables?**

* Account balance *Balance*
* Number of years *Years*
* Yearly Interest *Interest*
* Initial amount *Amount*
* Interest rate *Rate*
* Target Amount *Target*

**Algorithm?**

**Input** *Amount, Rate, Target*

*Years* 🡨 0

*Balance* 🡨 *Amount*

**Repeat** **while** *Balance* < *Target*

{

*Years* 🡨 *Years* + 1

Interest 🡨 *Balance* x *Rate / 100*

*Balance* 🡨 *Balance* + *Interest*

}

**Output** *Years*