Interest Rates

Examples:

Today you receive the offer to deposit **90 USD** in a savings account, getting back **93.5 USD** in **one year**.
Today you receive the offer to deposit **90 USD** in a savings account, getting back **93.5 USD** in **three years**.

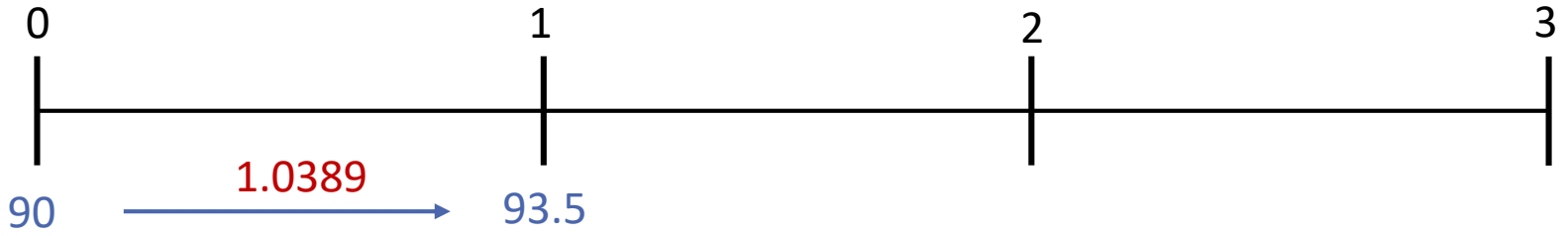
Formula:

$$r = \left(\frac{FV}{PV}\right)^{\frac{1}{n}} - 1$$

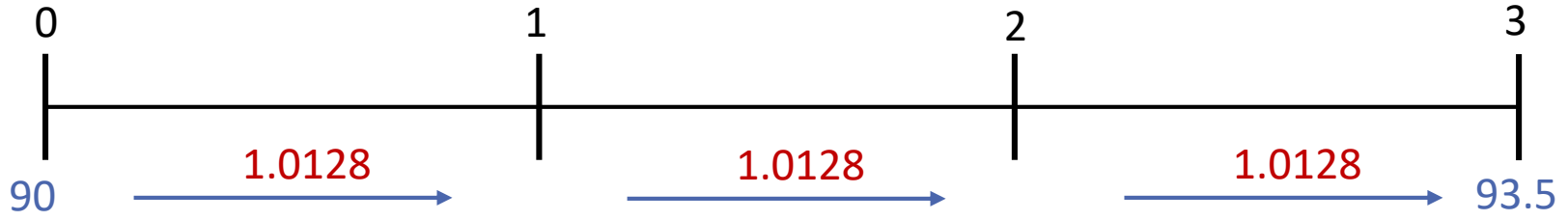
FV: Future Value
PV: Present Value
r: Interest Rate (per period)
n: number of periods

Interest Rates - Solutions

$$0.0389 = \left(\frac{93.5}{90}\right)^{\frac{1}{1}} - 1$$



$$0.0128 = \left(\frac{93.5}{90}\right)^{\frac{1}{3}} - 1$$



Stock Returns (Price Return)

Example:

One year ago you invested **50 USD** in a stock that is now worth **56.5 USD**.

Formula:

$$r = \frac{P_{t+1}}{P_t} - 1$$

P_t: Price @ timestamp t
P_{t+1}: Price @ t+1
r: Period Return (Price Return)

Stock Returns (Total Return)

Example:

One year ago you invested **50 USD** in a stock that recently paid a Dividend of **2 USD** and is now worth **56.5 USD**.

Formula: Price Return + Dividend Yield

$$r = \frac{P_{t+1} + D_{t+1}}{P_t} - 1 = \frac{P_{t+1}}{P_t} - 1 + \frac{D_{t+1}}{P_t}$$

= Total Return

P_t: Price @ timestamp t
P_{t+1}: Price @ t+1
D_{t+1}: Dividend payment @ t+1
r: Period Return (Total Return)