

$$\begin{aligned}
 \$ 100 & \xrightarrow{\text{After 1 year}} 100 + 10\% (100) \\
 & = 100 \left(1 + \frac{10}{100} \right) = 110
 \end{aligned}$$

$$\begin{aligned}
 & \xrightarrow{\text{After 2 years}} 110 + 10\% \text{ of } 110 \\
 & = 100 (1.1)^2 + 100 \frac{(1.1)^2}{(1.1)} (1.1) \\
 & = 100 \left(1 + \frac{10}{100} \right)^2
 \end{aligned}$$

$$\text{After } x \text{ years} = 100 \left(1 + \frac{10}{100} \right)^x$$

Question How long will it take to double the capital

$$\begin{aligned}
 \text{Ans } 100 (1.1)^x & = 200 \\
 (1.1)^x & = 2 \\
 x & = \log_{1.1} 2
 \end{aligned}$$

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