Lump Sum: Use this when we put money in just once and let it sit there gaining interest.

savings = $\text{money}(1+\frac{\text{rate}}{n})^{\text{years*n}}$

Periodic Payment: Use this when we put money in via installments in order to save up (but when it is NOT a loan).

savings = $\dfrac{\text{money}[(1+\frac{\text{rate}}{n})^{\text{years*n}}-1]}{\frac{\text{rate}}{n}}$

Loans: Bank could have placed the loan in an interest bearing account. Instead, it gets it back in installments and earns interest by putting our installments in a periodic payment savings account.

$$\text{loan}(1+\frac{\text{rate}}{n})^{\text{years*n}} = \dfrac{\text{monthly payment }[(1+\frac{\text{rate}}{n})^{\text{years*n}}-1]}{\frac{\text{rate}}{n}}$$

Using algebra, as the book did in the homework reading on page 94, we obtain:

Loan Payment Formula: Use this for loan problems but not savings problems.

$$\text{monthly payment} = \dfrac{\text{loan }(\frac{\text{rate}}{n})}{1-(1+\frac{\text{rate}}{n})^{-\text{years*n}}}$$