**Notes: Present & Future Value of Investments**

Present Value

**Equation for Single Deposit Investment:** $P=\frac{B}{\left(1+\frac{r}{n}\right)^{nt}}$

**Equation for Periodic Deposit Investment:** $P=\frac{B×\frac{r}{n}}{\left(1+\frac{r}{n}\right)^{nt}-1}$

 where  *B =*

 *P =*

 *r =*

 *n =*

*t =*

**Example 1:** Mr. and Mrs. Johnson know that in 6 years, their daughter Ann will attend State College. She will need about $20,000 for the first year’s tuition. How much should the Johnsons deposit into an account that yields 5% interest, compounded annually, in order to have that amount?

**Example 2:** Nick wants to install central air conditioning in his home in 3 years. He estimates the total cost to be $15,000. How much must he deposit monthly into an account that pays 4% interest, compounded monthly, in order to have enough money?

Future Value

**Equation for a Periodic Investment:** $B=\frac{P\left[\left(1+\frac{r}{n}\right)^{nt}-1\right]}{\frac{r}{n}}$

 where  *B =*

 *P =*

 *r =*

 *n =*

 *t =*

**Example:** Rich and Laura are both 45 years old. They open an account at the Savings Bank with the hope that it will gain enough interest by their retirement at the age of 65. They deposit $5,000 each year into an account that pays 4.5% interest, compounded annually. What is the account balance when Rich and Laura retire?