6.7 Financial Models

▼ Periodic Compound Interest

P-principle or initial investment

r-annual interest rate

t-time in years

n-number of compounding in one year

A-Accrued amount

$$A = P\left(1 + \frac{r}{n}\right)^{nt}$$

▼ Continuous Compound Interest

P-principle or initial investment

r-annual interest rate

t-time in years

A-Accrued amount

$$A = Pe^{rt}$$

▼ Example Find the Future Value when interest is compounded quarterly

Astrid invests 300 dollars in a bank account paying 4% interest per year, compounded quarterly for 10 years. How much will Astrid have after 10 years?

▼ Example Find the Future Value when interest is compounded continuously

Astrid invests 300 dollars in a bank account paying 4% interest per year, compounded continuously for 10 years. How much will Astrid have after 10 years?

▼ Example: Find the Present Value

Find the principle needed now to get $100,000 after 20 years at 5% interest compounded monthly , that is, find the present value.

▼ Example: Find the Time to Double an Investment

Suppose that a bank offers you an account that pays 7% annually compounded continuously. If you plan to deposit $1000, how long will it take for you money to double? Round your answer to the nearest year.

▼ Example: Find the Interest Rate to Triple an Investment

Suppose that broker tells you that it will take 15 years to triple your money on an investment that is compounded continuously. What is the annual interest rate that you will be earning? Round your answer to three decimal places.

▼ Example: Find the Future Value of a Home

What will a $120,000 house cost 6 years from now if the price appreciation for homes over that period averages 3% compounded annually?