Aim #6: How can we apply our knowledge of exponential equations to compound interest problems?

**COMPOUND INTEREST FORMULAS**

**COMPOUNDED n TIMES A YEAR:**

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

, where:

- \( A \) = final balance of account
- \( P \) = principal (original balance/investment)
- \( r \) = interest rate (as a decimal)
- \( n \) = # of interest periods (# times compounded)
- \( t \) = time in years

**COMPOUNDED CONTINUOUSLY:**

\[ A = Pe^{rt} \]

, where:

- \( A \) = amount
- \( P \) = principal
- \( e \) = 2.718
- \( r \) = rate of interest
- \( t \) = time (in years)