1. Future value of a lump sum  
   \[ FV_t = PV \left(1 + i\right)^t \]

2. Present value of a lump sum  
   \[ PV = \frac{FV_t}{(1 + i)^t} \]

3. Future value of an annuity  
   \[ FV = \text{PMT} \left(\frac{(1 + i)^t - 1}{i}\right) \]

4. Present value of an annuity  
   \[ PV = \frac{\text{PMT} \left[1 - \frac{1}{(1 + i)^t}\right]}{i} \]

5. Present value of a perpetuity  
   \[ PV = \frac{\text{PMT}}{i} \]

6. Effective annual rate  
   \[ \text{EAR} = \left[1 + \frac{\text{APR}}{m}\right]^m - 1 \]

7. CAPM:  
   \[ \hat{r}_i = \hat{r}_m + \beta_i (\hat{r}_m - \hat{r}_f) \]  
   \[ \text{note: } \hat{r}_m = \text{return on the market, } \hat{r}_f = \text{risk-free rate} \]

8. Zero Growth Model:  
   \[ P_0 = \frac{D}{r_s} \]

9. Constant Growth Model:  
   \[ P_0 = \frac{D_t}{r_s - g} \]

10. Variable Growth Model:  
    \[ P_0 = \sum \left(\frac{D_t}{(1 + r_s)^t}\right) \]

11. Growth rate  
    \[ g = \text{RR} \times \text{ROE} \]  
    \[ \text{note: } g = \text{growth rate, } \text{RR} = \text{retention rate} \]

12. Cost of Preferred Stock  
    \[ r_p = \frac{D_p}{V_p (1 - f_p)} \]

13. Cost of Retained Earnings \( r_s \)  
    (A) CAPM approach  
    \[ r_s = \hat{r}_m + \beta_s (\hat{r}_m - \hat{r}_f) \]  
    \[ \text{note: } \hat{r}_m = \text{return on the market, } \hat{r}_f = \text{risk-free rate} \]

    (B) Discounted Cash Flow Method (DCF)  
    \[ r_s = \left(\frac{D}{P_0}\right) + g \]

    (C) Bond Yield Plus Risk Premium Approach  
    \[ r_s = r_d + \text{risk premium} \]  
    \[ \text{note: } r_d = \text{cost of debt} \]

14. Cost of Newly Issued Common Stock  
    \[ r_n = \frac{D}{P_0 (1 - f_p)} + g \]

15. WACC \(_1\)  
    \[ = w_d r_d (1-t) + w_p r_p + w_s r_s \]  
    \[ \text{note: } w_d = \% \text{ debt, } w_p = \% \text{ preferred stock, } w_s = \% \text{ common stock} \]

16. WACC \(_2\)  
    \[ = w_d r_d (1-t) + w_p r_p + w_s r_s \]

17. Breakpoint = \( \text{RE} / (\% \text{ cs in capital structure}) \)  
    \[ \text{note: } \text{RE} = \text{retained earnings} \]

18. Net Present Value (NPV) = PV(CFs) - Initial Investment

19. Profitability Index (PI) =  
    \[ \frac{\text{PV of cash inflows}}{\text{PV of cash outflows}} \]