

Study Guide for Finance Final: **NOTE: Final is designed for 50 minute period. Required to bring a TI-84 calculator or similar.** Formulas will be provided for you on the test. A list of formulas given is provided below.

Final Covers Chapters 1, 3, 4, and 5 of your text: Financial Algebra and will be worth 100 points and 15% of your grade. In addition, the grade on the final can replace your lowest test grade. Vocabulary Section will cover Chapter 5 only, Section 5-4: Auto Insurance.

Chapter 1 topics (Stock Market): Calculating capital gains and losses, calculating net proceeds, problems involving stock dividends, and problems involving stock splits (including reverse splits), Interpreting Data from a Stock Table. Study problems like p.59-61 #6, 7, 9, 10, 14, 15, 19, 21

Chapter 3 topics (Banking Services): Computing interest using the compound interest formula, using the Present Value and Future Value formulas to predict outcomes for single deposit and periodic deposit investments. Graphing a Future Value function and interpreting the graph. Study problems like p.170-171 #10, 11, 15, 16, 17

Chapter 4 topics (Loans and Credit): Calculating the average daily balance and finance charge for a credit card statement (including using an average daily balance calendar), calculating the interest (or finance charge) for a loan using the Monthly payment formula. Finding the length of a loan given the monthly payment amount and interest rate using the Length of Loan formula. Plotting data from a Loan Payment Table on a Scatterplot (statistics feature) and finding Regression equations (linear, quadratic and/or cubic) and interpreting the scatterplot and graphs. Understanding how an installment plan works and comparing different finance plans for a loan. Study problems like p.215-217 #2, 4, 5, 8, 11, 14, 17

Chapter 5 topics (Automobile Ownership): Study problems like p.285-287 #4, 5, 7, 9, 11ab, 12, 13, 14, 15 and your two growth checks

- Know the different type of auto insurance you can purchase and how much insurance would pay in case of an accident including property damage, bodily injury, collision, and comprehensive insurance. Understand what is a claim, a premium, and a deductible. NOTE: Collision and Comprehensive have deductibles and property damage and bodily injury do not (Sec 5-4)
- Know how to write an equation for straight line depreciation of an automobile. Write and graph and automobile expense equation. Graph both equations of the same axis and interpret your graph (Sec. 5-5)
- Apply the formula for straight line depreciation (Sec. 5-5)
- Apply the formula for exponential depreciation of an automobile. Graph your equation and interpret the graph (Sec. 5-6)
- Create a scatterplot for exponential depreciation and use an exponential regression equation to model your scatterplot. Graph and interpret your exponential regression equation. Use your calculator to trace the graph. (Sec. 5-6)
- Use conversion factors to convert miles to kilometers, liters to gallons, and miles per gallon to kilometers per liter, and vice versa. Use exchange rates to convert US currency to foreign currency values (Sec. 5-7)
- Use the formula  $D = r t$  to calculate travel times, speeds, distances, and amount of gas needed for a trip. Interpret odometer readings from a car's dashboard (Sec. 5-7)
- Use the formulas for reaction distance, braking distance, and total stopping distance to find out if a driver has enough time to stop before an accident (Reminder: reaction distance + braking distance = total stopping distance) (Sec. 5-8)
- Use the formula for skid speed distance to solve for minimum speed, skid mark lengths ( $D$ ), drag factor of the road ( $f$ ), and braking efficiency ( $n$ ) (from 0 to 100%, use a decimal in the formula) (Sec. 5-9)
- Use the formula for skid speed based on yaw marks (curved skid marks) to solve for minimum speed ( $s$ ), drag factor of the road ( $f$ ) and radius of the circle that the yaw mark is part of ( $r$ ). Note: You may need to also use the formula to find the radius using  $C$  (chord) and  $M$  (middle ordinate) measurements (Sec. 5-9)

FORMULAS For Final:

Pre-Split Market Capitalization = Number of shares  $\times$  Market price

Post-Split Market Price and Number of Outstanding Shares. In general, in any a-for-b split:

Post-Split Number of Shares =  $\frac{a}{b} \times$  Pre-Split number of Shares

Post-Split Price of Share =  $\frac{b}{a} \times$  Pre-Split Price of Share

**Percent Net Change:**

$$\frac{\text{Ending Price} - \text{Starting Price}}{\text{Starting Price}} \times 100$$

**Capital Gain or Capital Loss** = Selling Price – Purchase Price

**Net Proceeds** = Sale Proceeds – Purchase Cost

**Sale Proceeds** = Sale Price of Stock – Broker Fees

**Purchase Cost** = Cost of Stock + Broker Fees

$$\text{Yield} = \frac{\text{Annual Dividend Per Share}}{\text{Current Price of One Share}}$$

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

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

$$B = pe^{rt}$$

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

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

$$M = \frac{p \left( \frac{r}{12} \right) \left( 1 + \frac{r}{12} \right)^{12t}}{\left( 1 + \frac{r}{12} \right)^{12t} - 1}$$

$$t = \frac{\ln \left( \frac{M}{p} \right) - \left( \ln \left( \frac{M}{p} - \frac{r}{12} \right) \right)}{12 \ln \left( 1 + \frac{r}{12} \right)}$$

$$\text{Slope: } \frac{y_2 - y_1}{x_2 - x_1}$$

$$\text{Equation of a line: } y = mx + b$$

$$y = A(1 - r)^x \quad y = ab^x$$

$$x = \frac{\ln\left(\frac{y}{A}\right)}{\ln(1 - r)}$$

$$b = 1 - r$$

$$D = R \times T$$

$$1 \text{ kilometer} \approx 0.621371 \text{ miles}$$

$$1 \text{ mile} \approx 1.60934 \text{ kilometers}$$

$$1 \text{ gallon} \approx 3.8 \text{ liters}$$

$$1 \text{ liter} \approx .26 \text{ gallons}$$

$$D = R \times T \quad (\text{Distance} = \text{rate} \times \text{time})$$

$$b = 1 - r$$

$$\text{Slope: } \frac{y_2 - y_1}{x_2 - x_1}$$

$$\text{Equation of a line: } y = mx + b$$

$$y = A(1 - r)^x$$

$$x = \frac{\ln\left(\frac{y}{A}\right)}{\ln(1 - r)}$$

$$\frac{s^2}{20}$$

$$\frac{s^2}{20} + s$$

$$\frac{s^2}{170} + \frac{s}{5}$$

$$S = \sqrt{30Dfn}$$

$$r = \frac{C^2}{8M} + \frac{M}{2}$$

$$S = \sqrt{15fr}$$