

*Industry, Perseverance, & Frugality,  
make Fortune yield.*

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Ben Franklin

**NOTE:** Compute all dollar-denominated answers to the nearest dollar, and compute all other answers to four decimal places (*i.e.*, 7.62%). For the multiple choice questions, give the correct choice and very briefly explain your answer.

1. Able and Baker both just turned 19 years old today. Baker, who is a bit more serious than Able, saves \$2,000 per year from age 19 through 26. To impress a girl that he meets on Hinge, he becomes a social justice warrior, and very mistakenly stops contributing forever to his savings, but he leaves his savings invested. Able opts to protest and party hard until he turns 26 and joins Goldman Sachs. He then begins saving \$2,000 per year until age 65. All contributions are made at year end, and each earns an annual return of 10%. When they are about to turn 66, who has more money and how much more? [*FV for Able and FV twice for Baker*].
2. You borrow \$500,000 at 3.00% per year (APR, not EAR) for 30 years to purchase a two bedroom apartment in some city that is not New York or to finance FLS.
  - (a) What is your monthly payment? [*PMT*]
  - (b) What is the total amount of interest that you will pay on this loan?
  - (c) What is the loan principal after 15 years of payments?
  - (d) If you make an additional monthly payment of \$250, in how many years will the loan be repaid? [*NPER or N*]
  - (e) Using the original facts, if you want to repay the loan in 15 years instead of 30, how much more do you need to pay each month? [*PMT*]
  - (f) Using the original facts, immediately after the 72nd payment, you receive a \$50,000 bonus, which you use to pay down the principal. By how many years and months do you reduce the mortgage? *Note: When you prepay a mortgage, your monthly payment does not change but the interest that accrues each month is less (because the principal is less), and you will make fewer payments.* [*PV and NPER or N*]
3. FLS Inc. is preparing its 2021 statement of cash flows. For each item below, indicate whether it will be an decrease or increase to operating, investing, or financing CFs.
  - (a) Buy warehouse and land
  - (b) Payment of an account receivable
  - (c) Issuing more shares of stock

- (d) Depreciation expense of the new warehouse
  - (e) Payment of some dividends
  - (f) Payment of interest
  - (g) Sale of goods on credit to a customer (increase in AR)
  - (h) Sale of bonds (borrowing)
  - (i) Redemption of some of its shares outstanding
  - (j) Payment of an account payable for services received from a law firm
  - (k) Increase in a payable for services rendered by another law firm
4. Open Amazon's 2020 financial statements. For the questions below, please indicate the formula you used, the numbers used in the computation, and the source of the numbers, e.g., income statement, CF statement. The notes to the financials may be useful.
- (a) What is AMZN's current ratio?
  - (b) What is the book value of a share of AMZN? What is the current market value?
  - (c) What items may be missing from AMZN's BS that may account in the difference of the book and market values?
  - (d) How much dividends did AMZN pay in 2020?
  - (e) What's AMZN's gross profit margin (GPM)?
  - (f) What's AMZN's EBITDA and EBITDA margin?
  - (g) What's AMZN's operating profit margin?
  - (h) What's AMZN's net profit margin?
  - (i) What are AMZN's selling and marketing expenses? As a percent of revenue?
  - (j) What is AMZN's cash flow from operations (CFO)?
  - (k) What's AMZN's free cash flow (FCF)?
  - (l) What are AMZN's days receivable outstanding (DRO) and days payable outstanding (DPO)? Any comments?