

Name: \_\_\_\_\_ Key: Version 100

Due: \_\_\_\_\_ 0

Write your answers in the boxes below each question. On separate paper or using a iPad/tablet app, neatly show your work for each question. No credit will be awarded if you provide an answer but show no work. Upload as a single PDF file containing these answer sheets and your work with this as the first page. Save the file as V# where the # is your version number from the top right of this page. Example: "V101.pdf" if you have Version 101. Upload to josephfarizo.com/assignments.html. Do not round intermediate calculations, and show 4 decimal places (i.e., round 1.23456 to 1.2346 or 10.98765% to 10.9877%).

**Question 1** You'll make a \$155,000 down payment on a \$541,000 home and borrow the remainder at 6.7% APR, making monthly payments for 30 years. (a) What is the monthly payment? (b) Of your payment in month 5, how much is applied to interest? (c) How much total principal is paid from month 49 to month 71?

**a = \$2,490.77; b = \$2147.61 c = \$10,728.03**

**Question 2** Determine the IRR of a project costing \$42000 with annual end-of-year cash flows of \$18000, \$25000, and \$11000 over the next 3 years, and state whether the project should be accepted or rejected given a required return of 10.678%. Provide 3 decimal places (i.e., 1.234%).

**IRR =14.678%. Accept**

**Question 3** Find a three-year project's total cash flow in year 3 given: Year 0 machinery investment = \$3200 depreciated to zero, with salvage of \$1300. Unit sales of 382 in year 3, with sales price of \$32 and unit cost of \$16. Fixed costs of \$980, taxes of \$1113, and an investment of \$100 in working capital in year 0.

**\$5419**

**Question 4** A lender considers extending a \$56350 loan to a customer charging 5.5% per quarter. What is (a) the rate they must by law advertise this loan? (b) The actual rate this loan charges? (c) If a customer pays \$8000 per quarter on this loan, in how many years will the loan be paid off? Provide 3 decimal places (i.e., 1.234%).

**(a) = 22% (b) = 23.8825% (c) = 2.288**

**Question 5** You wish to purchase a \$34000 car. A lender quotes an APR of 4.8%. Assuming a down payment of \$10000, what will (a) monthly payments be assuming a 36 month term and end-of-period payments? What is (b) your EAR? Provide 3 decimal places (i.e., 1.234%).

**\$717.15; 4.907%**

**Question 6** Compute the (a) payback and (b) discounted payback of a project costing \$4500 with annual end-of-year cash flows of \$2000, \$2300, and \$1100 over the next 3 years. For (a), provide 3 decimal places. Use a discount rate of 13% for (b), and only say in which year it is paid back (i.e., 'between years 3 and 4').

**(a) = 2.182 (b) = Doesn't Pay Back**

**Question 7** Determine the profitability index for a project costing \$78 that generates end-of-year cash flows of \$18, \$22 and \$15 assuming a discount rate of 10%. Should this project be accepted? Show three decimal places. Numbers are in millions.

**0.5874, Reject**

**Question 8** Determine the NPV of BOTH mutually exclusive projects, and state which (if any) should be accepted, assuming a discount rate of 10%: Project A costs \$11 and generates end-of-year cash flows of \$20, \$21 and \$14. Project B costs \$44, and generates end-of-year cash flows of \$20, \$21, and \$15. (Values in millions.)

**(a) = \$35,055.6 (b) = \$2,806.91; A larger**

**Question 9** You take out a 30-year, 4.9% APR, \$788000 mortgage. After 17 years, you 'refinance' at APR = 3.4% for 23 more years. (a) What will your new monthly payments be after refinancing? (b) What is total interest you pay over the entire life of both mortgages (40 years) through your very last payment?

**(a) = \$2,518.72 (b) = \$760,319.31**

Rate this problem set from 1 to 5, with 1 being "very easy" and 5 being "very difficult." (circle one)

1            2            3            4            5

About how many minutes did you spend on this problem set? \_\_\_\_\_