

**Finance 360: Principles of Financial Management (Joseph Farizo)**  
**Problem Set 3**

Version: 100

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

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

Write your answers in the boxes below each question. On separate paper, neatly show your work for each question. No credit will be awarded if you provide an answer but show no work. When completed, use the Adobe Scan app to take a picture and save as a single PDF file 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](http://josephfarizo.com/assignments.html). Correct answers are important, only minimal partial credit is awarded.

**Question 1** A guard for the Patriots signed a contract totaling \$40 million in payments, including \$3 million to be received today, then \$5, \$7, \$10, and \$15 million at the beginning of the subsequent four years. Assuming a discount rate of 14.0% per year, what is this package actually worth today?

**\$28.4032 million**

**Question 2** Find the EAR: (a) APR = 5.31% with monthly compounding. (b) APR = 8.46% with daily compounding. (c) APR = 6.43% with continuous compounding. (d) APR = 6.94% with semiannually compounding. Show three decimal places in all your answers, for example: '10.987%'.

**(a) = 5.441% (b) = 8.827% (c) = 6.641% (d) = 7.06%**

**Question 3** Art collecting isn't always profitable. You purchased a rare painting at the end of 2015 for \$1561. You eventually sold at the end of 2020 for \$1042. What was your average annual rate of return on this investment? Be very clear about the sign of your answer.

**-7.766%**

**Question 4** DIG's preferred stock (P/S) costs \$111.11 and pays a \$20 dividend. CSR's P/S costs \$136.36, paying a \$15 dividend. (a) What does each return? (b) What is BRR's P/S price if it pays a \$34 dividend and offers a 13% rate of return? Assume annual end-of-year dividends.

**(a) DIG = 18%, CSR = 11%. (b) BRR = \$261.54**

**Question 5** Progressive will pay your insurance claim, with two options: (1) receive a lump sum of \$10,580.91 now, or (2) receive annual end-of-year payments starting at \$930 at the end of the year that grow at 6.04% per year for 17 years. Assuming you invest at 10.12% per year, how much more is the better option worth today?

**\$215.94**

**Question 6** You make 45 deposits of \$1000 (beginning of each year) in an account earning 8.61% per year. (a) How much will you have after 45 years? (b) If in 45 years you make equal beginning of year withdrawals for 30 more years until you have \$0, how much will your withdrawals be if the account grows at 5.81% per year?

**(a) = \$506,195.53 (b) = \$34,051.64**

**Question 7** You have a balance of \$10,102 on a bank loan, and make payments of \$1,327 per year. How long until you've paid off this loan, given you pay 4.98% on the carried balance? Provide three decimal places in your answer, and assume end-of-year payments.

**9.807 years**

**Question 8** Find the APR: (a) EAR = 11.23% with monthly compounding. (b) EAR = 6.37% with daily compounding. (c) EAR = 10.33% with continuous compounding. (d) EAR = 6.78% with semiannually compounding. Show three decimal places in all your answers, for example: '10.987%'.

**(a) = 10.69% (b) = 6.176% (c) = 9.831% (d) = 6.669%**

**Question 9** A \$19,078 loan charges 18.35% APR which compounds (and is paid) weekly. Assuming end-of-period payments are \$88.05 each, in how many fewer YEARS could the debt be paid if the rate were 5.35% APR and the same weekly \$88.05 payments are made? Show three decimal places, i.e., '3.365 years'.

**3.18 years**

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? (circle one)

<45          45          60          75          >75