

6.5.1: Classification of Finance Problems (Exercises)

SECTION 6.5 PROBLEM SET: CLASSIFICATION OF FINANCE PROBLEMS

Let the letters A, B, C, D, E and F be represented as follows:

$$\begin{array}{lll} A = FV \text{ of a lump-sum} & C = FV \text{ of an annuity} & E = \text{Installment payment} \\ B = PV \text{ of a lump-sum} & D = \text{sinking fund payment} & F = PV \text{ of an annuity} \end{array}$$

Classify each by writing the appropriate letter in the box, and write an equation for solution.

- 1) What monthly deposits made to an account paying 9% will grow to \$10,000 in 4 years?
- 2) An amount of \$4000 is invested at 6% compounded daily. What will the final amount be in 5 years?
- 3) David has won a lottery paying him \$10,000 per month for the next 20 years. He'd rather have the whole amount in one lump sum now. If the current interest rate is 7%, how much money can he hope to get?
- 4) Each month Linda deposits \$250 in an account that pays 9%. How much money will she have in 4 years?
- 5) Find the monthly payment for a \$15,000 car if the loan is amortized over 4 years at a rate of 10%.
- 6) What lump-sum deposited in an account paying 7% compounded daily will grow to \$10,000 in 5 years?
- 7) What amount of quarterly payments will amount to \$250,000 in 5 years at a rate of 8%?
- 8) The Chang family bought their house 25 years ago. They had their loan financed for 30 years at an interest rate of 11% resulting in a payment of \$1350 a month. Find the balance of the loan.

A 10-year \$1000 bond pays \$35 every six months. If the current interest rate is 8%, in order to find the fair market value of the bond, we need to find the following.

- 9) The present value of \$1000.
- 10) The present value of the \$35 per six month payments.

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- 11) What lump-sum deposit made today is equal to 33 monthly deposits of \$500 if the interest rate is 8%?
- 12) What monthly deposits made to an account paying 10% will accumulated to \$10,000 in six years?
- 13) A department store charges a finance charge of 1.5% per month on the outstanding balance. If Ned charged \$400 three months ago and has not paid his bill, how much does he owe?
- 14) What will the value of \$300 monthly deposits be in 10 years if the account pays 12% compounded monthly?
- 15) What lump-sum deposited at 6% compounded daily will grow to \$2000 in three years?
- 16) A company buys an apartment complex for \$5,000,000 and amortizes the loan over 10 years. What is the yearly payment if the interest rate is 14%?
- 17) In 2002, a house in Rock City cost \$300,000. Real estate in Rock City has been increasing in value at the annual rate of 5.3%. Find the price of that house in 2016.
- 18) You determine that you can afford to pay \$400 per month for a car. What is the maximum price you can pay for a car if the interest rate is 11% and you want to repay the loan in 4 years?
- 19) A business needs \$350,000 in 5 years. How much lump-sum should be put aside in an account that pays 9% so that five years from now the company will have \$350,000?
- 20) A person wishes to have \$500,000 in a pension fund 20 years from now. How much should he deposit each month in an account paying 9% compounded monthly?

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