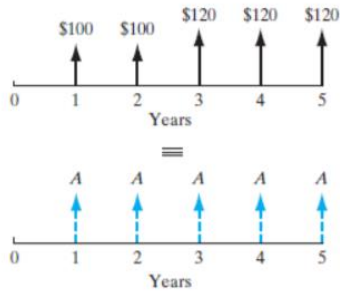


**IE 342 18-19 Spring
Study Set 1**

Please do not submit your answers as they will not be graded!!

(Solutions will not be provided)

- 1) What value of A makes two annual cash flows equivalent at 13% interest compounded annually?



Answer: \$110.5134

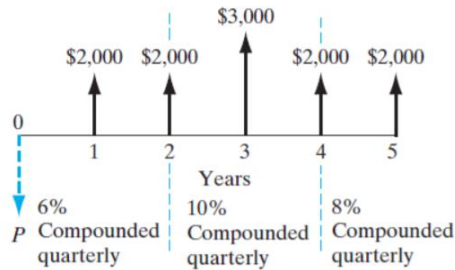
- 2) How much invested now at 6% would be just sufficient to provide three payments, with the first payment in the amount of \$7,000 occurring two years hence, then \$6,000 five years hence, and finally \$5,000 seven years hence?

Answer: \$14,4847.0

- 3) A private hospital is considering purchasing surgical equipment for the kidney stone surgeries. The hospital needs to borrow \$35,000 to purchase the equipment. A deal has been made between a local bank and the hospital that the hospital would pay the loan back over a five-year period with the following payment terms: 15%, 20%, 25%, 30%, and 35% of the initial loan at the end of first, second, third, fourth, and fifth years, respectively. Find the rate of interest is the bank earning from this loan? (Find i)

Answer: $i=6.9137\%$

- 4) Consider the accompanying cash flow diagram, which represents three different interest rates applicable over the five-year time span shown:



- (a) Find P
- (b) Find F (at year 5)
- (c) Calculate the equal-payment-series cash flow A that runs from $n=1$ to $n=5$

Answer: a) \$8,875.4265 b) \$13,186.0 c) \$2,194.2223

- 5) Five annual deposits in the amounts of \$3,000, \$2,500, \$2,000, \$1,500, and \$1,000, in that order, are made into a fund that pays interest at a rate of 7% compounded annually. Determine the amount in the fund immediately after the fifth deposit.

Answer: \$11,889.4785

- 6) A series of equal quarterly payments of \$5,000 for 12 years is equivalent to what present amount at an interest rate of 9% compounded:
- a) Quarterly?
 - b) Monthly?
 - c) Semi-annually

Answer: a) \$145,847.7388 b) \$145,358.9027 c) 146,567.5807

- 7) Bulem is planning to retire in 15 years. Money can be deposited at 8% compounded quarterly. What quarterly deposit must be made at the end of each quarter until Bulem retires so that she can make a withdrawal of \$25,000 semi-annually over the first five years of her retirement? Assume that her first withdrawal occurs at the end of six months after her retirement

Answer: \$1,774.3750