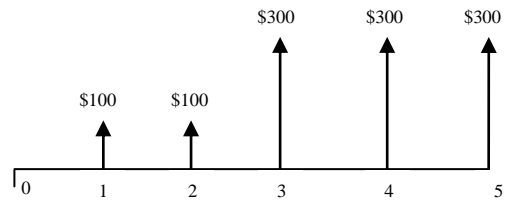


IEGR 350 (Engineering Economy)**EXAM #2 (MIDTERM)**

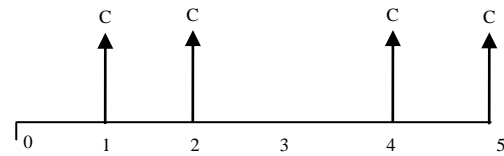
1. The two cash flows below are equivalent at the interest rate of 12% compounded *annually*. Determine then unknown value C. [10 pts]

Cash flow 1



≡

Cash flow 2



NAME:

Date: March 19, 2015

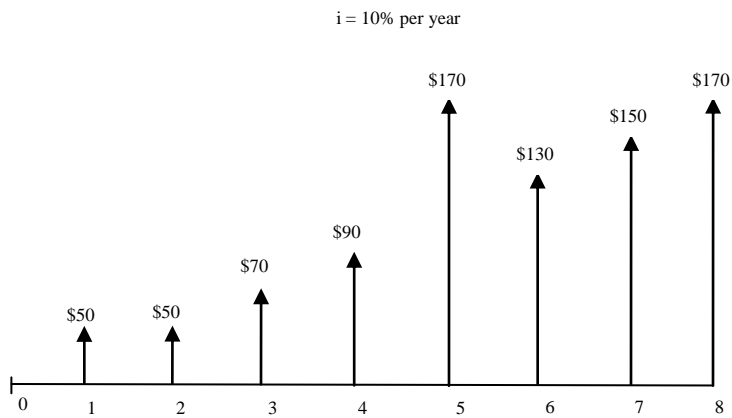
2. Profits from recycling paper, cardboard, aluminum and glass at a liberal arts college have increased at a constant rate over the past few years. If this year's profit [end of year (EOY) 1] is expected to be \$6,000 and the profit trend continues to rise at \$1100 through year 5, (a) draw the cash flow diagram to represent this scenario [2 pts], (b) what will the profit be at the EOY 5 if the interest rate is 8% per year [4 pts] and (c) what is the present worth of the profit at the same 8% rate? [4 pts]

HINT: Do not solve this problem using separate individual cash flows, else, you will lose many points.

NAME:

Date: March 19, 2015

3. Using the following CFD, determine the present worth (P_0) value if the interest rate is 10% compounded *annually*. [10 pts]
You **must** use the arithmetic gradient in the formulation of this problem to receive full credit and you **CAN NOT** discount each individual cashflows (i.e., not all eight individually). Else, you will lose many points for this problem.



NAME:

Date: March 19, 2015

4. Chemical engineers at a Coleman Industries plant in the Midwest have determined that a small amount of a newly available chemical additive will increase the water repellency of Coleman's tent fabric by 20%. The plant superintendent has arranged to purchase the additive at a base amount of \$7000 starting 1 year from now. He expects the annual price to increase by 12% per year for 8 more years beyond this starting point. Additionally, an initial investment of \$35,000 was made now to prepare a site suitable for the contractor to deliver the additive. (a) Draw the correct CFD [4 pts], and (b) Use an interest rate of $i = 15\%$ per year to determine the equivalent total present worth (P_0) for all of these cash flows [6 pts].