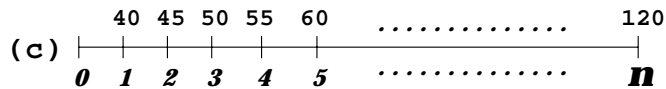
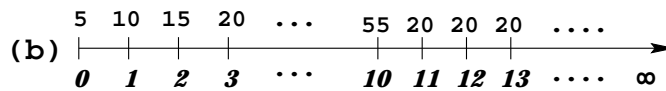
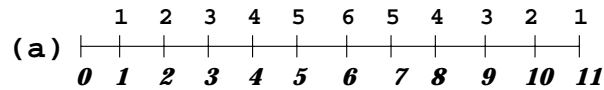


Worksheet # 4

- Calculate $12(Da)_{\overline{8}|6\%}$, $200(Ia)_{\overline{8}|6\%}$, $200(Is)_{\overline{8}|6\%}$, $15(I\ddot{a})_{\overline{8}|6\%}$.
- Assuming $i = 0.08$, *annuity payment period = interest conversion period*, find the present values of each of these annuities :



- Page 71** : # 3-44, 3-51, 3-60, 3-63, 3-64 .
- David repays a loan by making these payments : 200 at the end of the 1st year , 250 at the end of the 2nd year , 300 at the end of the 3rd year, 350 at the end of the 4th year, and so on until a final payment of 800 is made. If the annual effective rate of interest is 8%, what was the original loan amount ?
- Allison makes the following set of deposits : 500 at the beginning of the 1st year, 600 at the beginning of the 2nd year, 700 at the beginning of the 3rd year and so on with a final deposit made at the beginning of the 16th year. Interest is earned at an nominal annual rate of 8% converted quarterly. How much is in her account at the end of 16 years ?
- Victor wants to purchase a perpetuity paying 100 per year with the first payment due at the end of year 11. He can purchase it in either of two ways :
 - He can pay 90 per year at the end of each year for 10 years.
 - He can pay K per year at the end of each year for the first 5 years, and nothing for the next 5 years.

Calculate K . (**SHOW WORK**)

- (A) 150 (B) 160 (C) 170 (D) 175 (E) 180

- Jane receives a 10-year increasing annuity-immediate paying 100 the 1st year and increasing by 100 each year thereafter. Mary receives a 10-year decreasing annuity-immediate paying X the 1st year and decreasing by $\frac{X}{10}$ each year thereafter. At an effective annual interest rate of 5%, both annuities have the same present value. Calculate X . (**SHOW WORK**)
 (A) 860 (B) 864 (C) 868 (D) 872 (E) 876

(Continue on back ...)

8. You are given an annuity-immediate paying 10 for 10 years, then decreasing by 1 per year for 9 years and paying 1 per year thereafter, forever. The annual effective rate of interest is 4%. Calculate the present value of this annuity. (**SHOW WORK**)
 (A) 119 (B) 121 (C) 123 (D) 125 (E) 127
9. An annuity provides for 30 annual payments. The first payment of 100 is made immediately and the remaining payments increase by 8% per year. Interest is calculated at 13.4% per year. Calculate the present value of this annuity. (**SHOW WORK**)
 (A) 1423 (B) 1614 (C) 1753 (D) 1866 (E) 1944
10. A loan of \$ 53,000 is to be paid off with n monthly payments of \$ 500 (starting a month after loan is made) followed by a smaller payment, called a *Drop Payment* , one month later. If the interest rate is 9% compounded monthly, find n and the amount of the drop payment.

ANSWERS

1. 358.04, 5210.27, 8304.38, 414.22 2. (a) 23.08 (b) 317.78 (c) 647.81 3. (#3-44)
 2,147,717.70 (#3-51) 0.564% (#3-60) 719.85 (#3-63) 12,652.21 (#3-64) 18,377,37 4.
 3533.07 5. 36,386.06 6. (A) 7. (B) 8. (A) 9. (B) 10. 212 full
 payments; drop payment= 45.54