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By Table III, the present value of a quarterly instalment for 8 years and 1 month (i.e. 33 instalments, first due one month hence), at 9% = \$23.545 × 25 = \$588.62 answer.

EXAMPLE 3.- A Mortgage, payable by half-yearly instalments of \$60, has 7 years and 3 months to run (i.e. fifteen instalments unpaid, first instalment due three months hence). What is its present value, interest at 10%, payable annually ?

By Table IV, the present value of a half-yearly instalment of \$1 for 7 years and 3 months at 10% annually=\$10.716 × 60 = \$642.96 answer.

EXAMPLE 4.- A Mortgage, payable by yearly instalments of \$210, has 15 years and 3 months to run, when last instalment matures. What is its present value, interest at 91% annually ?

By Table V, the present value of sixteen yearly instalments of \$1, last instalment due 183 months hence, at  $9\frac{1}{7}$  annually=\$8.6301 × 210=\$1812.321. answer.

By Tables III, IV and V the present value of a quarterly, half-yearly or yearly payment of Rent or Interest on Mortgages or Debeutures, can be determined to pay any of the rates given, and in the case of Mortgages or Debentures, the present value of the principal may be found by Table I, as by an example above.

5. Supposing a Borrower wishes to pay off a portion of his Mortgage in addition to his usual instalment, provided it be applied in reduction of the amount of the future instalments or in reduction of their number. It is not to be supposed that a Society would thus cancel a Mortgage, or portion of same, without charging a commission for re-investment; but, assuming this to have been arranged :- To find how such payment would affect equitably the subsequent instalments as to amount or as to time.

EXAMPLE 1.—A Mortgage, payable by monthly instalments of \$20 each, yields  $10\frac{1}{6}$  half-yearly interest, and has 7 years and 5 months to run. The Borrower wishes to pay down \$600, and to find how long his instalments of same amount must continue to pay off the debt.

By Table II, the present value of a monthly instalment of \$1 for 89 months = 62.101 × 20= **81242**.02 Deduct

600·00

**\$642.02** 

Dividing this by the amount of instalment, viz. \$20, will give the value of an instalment of \$1 for the necessary time  $-642.02 \div 20 = 32.10$ 

and present value of a monthly instalment of \$1 for 37 months

= 31.59 (nearest amt. below)

Balance

Difference on \$1 instalment =  $0.51 \times 20 = 10.20$ 

The time therefore would be 37 months, and \$10.20 additional cash to be paid now; or if postponed till 38 months would be \$10.20 ÷ .72320 (present value of \$1 due 38 months hence)=\$14.10, to be paid as a last instalment.

EXAMPLE 2.- A Mortgage, payable by quarterly instalments of \$60 each, and yielding 10% half-yearly on investment, has 5 years and 5 months to run before maturity of last instalment. The Borrower wishes to repay now \$300 on account, and to know how much his instalments are to be reduced for balance of period.